Improving Delivery Processes in the Fashion E-tail Industry

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Be Human, Be Brilliant, Be Revolutionary, Think Global, Todos Juntos.

Farfetch's values

Abstract

Farfetch, a luxury fashion e-commerce company, is suffering from growth pains associated with a fast and constant increase of sales volume since its creation in 2008. The needs to diversify shipping and delivery options, and to lower shipping costs for the final customer have gained special relevance in the current time. Such objectives give meaning to the development of the present dissertation.

In order to widen the range of shipping options available, two paths of development were followed. The increase in the number of routes of Standard service was systematically studied. Starting with a mapping of the initial Standard routes network, it was possible to replicate its price structure and prioritize implementation by estimating each route's impact. A visual control tool was developed to aid the implementation and the follow-up of these routes. 12 routes were fully implemented, 15 were excluded due to pricing or operational issues, and 21 remain to be set-up.

The concepts of Same Day Delivery and a Yacht Service – enabling deliveries to a customer's boat – were discussed. Possible locations of implementation were analyzed, by gathering both internal and external information. The processes of ordering and order fulfillment were adapted, and topics to be developed upon by other Departments were detailed. These concepts translate into a service upgrade to 21 distinct locations.

In parallel, it was deemed appropriate to improve the method for cost controlling and margin calculation for the most relevant courier partner. An accurate control process helps decrease uncertainty related with shipping costs, which in the long run allows the decrease of prices in general and the differentiation of strategies per customer country. A method to assess cost structure was developed and implemented. Filters were set up so that charges with high probability of being wrong are automatically identified, and standardized reports were structured. Both actions lower the time required to perform repetitive tasks in roughly 50%, making more resources available for the analysis of trends and localized problems – value added tasks. The study of cost structure allowed the reduction of costs from unknown origin from 6.9% to 1.5%, translating into the correct allocation of nearly GBP 700,000. Given the positive results, Farfetch hopes to implement a similar tool to the remaining courier partners.

With the project under this dissertation it was possible to widen service diversity, empowering customers to opt between the available services, and strengthen Farfetch's awareness of incurred costs.

Melhoria dos Processos de Distribuição na Indústria de Retalho de Moda *Online*

Resumo

A Farfetch, uma empresa de comércio eletrónico no setor da moda de luxo, está a experienciar dores de crescimento associadas ao rápido e constante aumento do volume de vendas desde a sua criação em 2008. As necessidades de diversificar opções de envio e entrega e diminuição dos preços de transporte a que o cliente final está sujeito ganham especial relevância no contexto atual. Tais objetivos dão sentido ao desenvolvimento da presente dissertação.

Duas linhas de desenvolvimento foram seguidas para aumentar o leque de serviços de entrega oferecidos pela empresa. O aumento do número de rotas de serviço regular foi estudado de modo sistemático. Partindo do mapeamento da rede inicial destas rotas, foi possível replicar a estrutura de preços seguida e dar prioridade a diferentes rotas avaliando o seu impacto esperado. Métodos visuais de controlo foram desenvolvidos para auxiliar a implementação das mesmas. 12 rotas foram implementadas, 15 foram excluidas por razões operacionais ou de preço, e as restantes 21 aguardam operacionalização.

Os conceitos de Entrega no Próprio Dia e Serviço a Iates – possibilitando a entrega direta na embarcação do cliente – foram discutidos. Possíveis localizações para implementação foram analisadas, através da recolha de informação interna e externa à empresa. Os processos de colocação de encomendas e do seu processamento foram adaptados para acomodar as novas opções de entrega. Enumeraram-se ainda alguns tópicos para desenvolvimento pelos departamentos competentes, sem os quais não será possível implementar as ideias trabalhadas. Estes conceitos traduzem-se na prestação de um serviço personalizado em 21 localizações distintas.

Em paralelo, considerou-se apropriado proceder à melhoria do método de controlo de custos e cálculo de margens para o fornecedor de serviços de entrega com maior relevância para o negócio. Um processo de controlo mais preciso ajuda a diminuir a incerteza associada aos custos de envio o que, a longo prazo, permite uma redução dos preços cobrados ao cliente final e a diferenciação de estratégias por país do cliente. Como tal, foi desenvolvido e implementado um método para identificar a estrutura de custos. Foram criados filtros para permitir uma identificação automática de valores cobrados pelo fornecedor considerados errados. Estruturaram-se relatórios padrão para a comunicação às equipas envolvidas. Ambas as ações permitiram diminuir em cerca de 50% o tempo necessário para efetuar tarefas repetitivas, deixando mais tempo disponível para a execução de tarefas de valor acrescentado – como a análise de tendências e resolução de problemas detetados. A análise da estrutura de custos permitiu a redução de 6.9% para 1.5% dos custos sem categoria definida, correspondendo à identificação de cerca de GBP 700,000. Tendo em conta os resultados, existe o objetivo de implementar uma ferramenta semelhante aos demais fornecedores de serviços de entrega no futuro.

Com o projeto desenvolvido nesta dissertação foi possível alargar a diversidade de serviços oferecidos, dando hipótese de escolha ao cliente, e melhorando a qualidade da informação disponível sobre custos associados ao envio de mercadorias.

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Contents

List of Acronyms

AWB	Air Waybill
BPM	Business Process Modelling
DB	Database
DDP	Delivered Duties Paid
DDU	Delivered Duties Unpaid
EU	European Union
KPI	Key Performance Indicator
NPS	Net Promoter Score
PS	Personal Shopper
RTO	Return to Origin
SoS	Speed of Sending
SQL	Structured Query Language
UK	United Kingdom
UML	Unified Modelling Language
USA	United States of America
VAT	Value Added Tax
VIP	Very Important Person

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1 Introduction

The popularity of online shopping is growing, and so is Farfetch – an eight year-old e-tailor of luxury fashion. To accommodate higher sales volume and to distinguish itself from its competitors, Farfetch needs to improve on the structure of its operations and innovate.

The present dissertation focuses on widening the service selection available to customers and improving internal processes for the control of shipping-related costs, with the objectives of achieving increased flexibility and business knowledge.

1.1 Farfetch

Farfetch is an e-commerce platform of luxury fashion connecting over 300 well-established boutiques with their global customers. Founded in 2008, it currently displays an average of 125,000 items and 1,000 designers online, a diversity of offer that surpasses fivefold its competitors'. In fact, the promotion of new and undiscovered brands is part of the company's motto – promoting diversity and creativity in the fashion world. Farfetch's business model is based on a commission per sale, and provides the boutiques with access to an e-commerce marketplace and its solutions in interface development, marketing, payment processing, fraud detection, and multilanguage customer support service.

From the supply point of view, Farfetch's partners are mainly European, with Italian boutiques taking the lead in quantities sold. A fair number of boutiques are located in the United States of America (USA) and Brazil, while the Asia Pacific region hosts some of the most recent additions to the network.

On the other hand, Farfetch's customers are spread all around the globe, the most prominent markets being USA, Brazil, Australia, the United Kingdom (UK), Hong Kong and South Korea. Such diversity implies satisfying a wide range of expectations and tastes, and Farfetch aims at providing a personalized customer experience close to an in-store purchase. Maintaining tight bonds between the three main stakeholders – the company, boutiques and customers – plays an ever important role in developing and nourishing the business.

Due to its complex supply network Farfetch operates in a drop-shipping model, with orders being sent directly from the boutiques to customers' addresses. Consolidation of parcels is non-existing, as daily point-to-point volume is low and customers expect to receive their goods in a timely manner. In consequence, shipping accounts for a relevant share of total costs. Business growth came with the awareness of the need to improve the current value proposition, both by lowering the impact of shipping costs, increasing delivery flexibility, and introducing value added services. The present dissertation describes the analysis and implementation of several lines of action in the context just described.

Farfetch currently has seven offices located in Portugal, UK, USA, Brazil and Japan, and is in the process of expanding to China and Russia to perform better in strategic markets. A branch of Farfetch deals with all activities related with Brazilian customers, namely the update of the independent Brazilian website, operations, payment and production. These activities are

managed locally, therefore, Brazil will be excluded from deeper analysis in the present dissertation.

Farfetch Portugal is divided into nine departments.

- *Account Management* – act as boutiques' commercial point of contact with Farfetch, and advise on strategic and planning issues;
- *Customer Service* – answer customers' inquiries on orders, products, campaigns and other issues;
- *Finance*;
- *Human Resources*;
- *Merchandising*;
- *Office Management*;
- *Operations* – oversee the correct function of supply activities, courier services, and fraud and payment tasks;
- *Partner Services* – deal with boutiques' daily operational issues;
- *Production* – create all media content that is uploaded into the website;
- *Technology* – deal with all tasks related to the website, back office applications and IT support.

The present dissertation was developed in the Operations Department located in Porto, Portugal.

1.2 The project

Farfetch is going through an intense period of business growth, as reflected in the evolution of orders sent over the past three years (Figure 1). With the aim of potentiating sales and increasing customer satisfaction, there is an on-going pursuit to provide new delivery options while reducing shipping cost for the final customer. This project aims at examining the processes related with courier operations, identifying improvement opportunities and implementing relevant changes in cooperation with the Operations department.

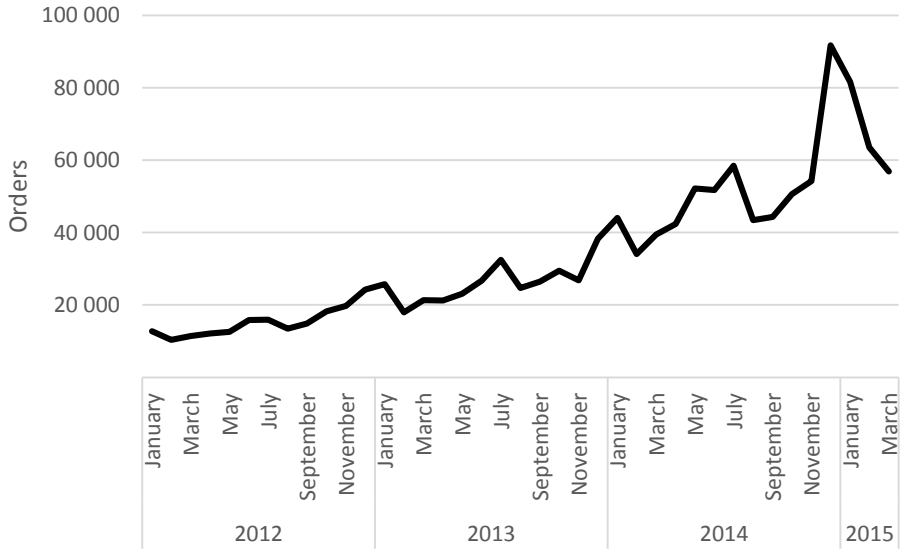

Figure 1 – Sent orders per month evolution

The following topics are developed and discussed:

- Analysis and implementation of Standard service routes;
- Development of new concepts of delivery – Same Day Delivery and Yacht Service;
- Improvement of the cost control and margin assessment process for courier operations.

Firstly, the broadening of Standard service routes is explored. A comparison on the available courier services and prices allows the selection of routes to implement by a set order of priority.

Secondly, two preexisting concepts for new delivery options are developed in order to further align offered services with the customers' lifestyle and interests. Possible locations for the implementation of Same Day Delivery and Yacht Service are studied based on internal and external sources of information. The existing processes for order placement and fulfillment are redesign if required, and topics for development by other departments are listed.

From the intensification in quantity of sent orders arose the pressing need of having full control over courier costs. The processes used for controlling routes' monthly profitability have become inefficient and unreliable due to the amount of data to be processed. Restructuring those processes should increase accuracy in detecting costs wrongly charged, provide standardized reporting tools and reduce the time spent in completing the task. Assuring a correct cost control helps maintaining fair shipping rates for the customers. Moreover, on the long run, this may boost customer satisfaction and retention.

1.3 Objectives

The main purpose of this project is to increase customers' perspective of delivery-related value, which can be divided in two courses of action – lowering cost and increasing benefit.

The present project aims at reducing the shipping cost paid by the final customer. This is accomplished by enabling the use of less expensive courier services, giving the customer the option to have his order shipped by Express or Standard services. In addition, a new method for controlling courier-related costs is developed in order to assess its structure and margins per route. This measure should help adapt price strategies depending on customer country and maintain a fair price for each route.

From the benefit point of view, the goal is to provide a more flexible and customized service, which the company aims at accomplishing through the implementation of new delivery methods, such as Same Day Delivery and allowing non-regular addresses – like mooring docks – as point of delivery.

All topics mentioned above are oriented towards the ambition of increasing customers' satisfaction with the overall shopping experience and lead to repurchase.

1.4 Methodology

The present project is divided into three main topics – the redesign of routes, the development of new delivery options, and the reengineering of the cost control and margin assessment process. Each topic follows a particular method.

In order to determine to what extent the routes' network should be altered, the preexisting situation is mapped and a list of possible improvements is made. To expand the offer of Standard delivery in Europe, new routes are selected by order of importance. The usage of new routes is controlled and customer satisfaction assessed.

The possibility of Same Day Delivery has been under operational testing in four cities since late 2014, to verify if boutiques and courier partners could respond quickly enough, and to assess customers' feedback. In the presence of a positive response, a wider range of locations is selected based on the daily quantity and value of same-city orders. Back office processes are defined and topics requiring further development are listed. Same Day Delivery is currently planned to be introduced in September.

Farfetch aims at introducing a Yacht Service, a premium service that delivers an order directly to the customer's boat. At first, research is centered on identifying which boutiques and marinas

could integrate the network. Operational issues are then verified, such as whether boutiques have the means to make the delivery or if courier services need to be arranged. The back office processes are then adapted. This upgraded delivery service should be implemented in late July.

The initial process for invoice verification and margin control is mapped in order to detect possible points for improvement. The analysis is implemented for the major courier service provider. To allow a correct and automatic analysis, information that was initially missing from the database (DB) is retrieved and uploaded in the form of three auxiliary tables. A system for detecting wrong invoice lines is designed. The Structured Query Language (SQL) queries formerly in use are updated to allow for the inclusion of more details. Three dashboards are then created in Tableau, so as to automatize and standardize reporting and control tasks as order volume increases.

1.5 Report structure

The remainder of this report is structured as follows. Chapter 2 encompasses a literature review on electronic commerce of luxury fashion and the online shopping experience. The supply chain model of drop-shipping is studied, and Business Process Modelling and Reengineering is briefly reviewed. Finally, shipping and delivery conditions found in several online fashion businesses are compared. Chapter 3 focuses on describing the current processes at Farfetch. It includes an overview of the production and order fulfillment processes, courier services in place and the mapping of the invoice verification process, as well as a summary of improvement opportunities found. Several additions and modifications to the current shipping and delivery systems are studied in Chapter 4. These include routes' redesign, the analysis of new delivery options and the restructuring of the method for cost control and margin assessment. Chapter 5 concludes this dissertation reviewing each proposed alteration and suggesting relevant topics for future development.

2 Literature review

The present chapter aims at providing a literature review of the relevant topics. Firstly, the growing business of e-commerce is addressed with a particular focus on the luxury goods' market, followed by an analysis of the online shopping experience. Supply chain models applicable to e-commerce are then analyzed, and the topics of Business Process Modelling and Reengineering are reviewed. Finally, shipping and delivery offers are analyzed for several online sellers of luxury fashion.

2.1 E-commerce meets luxury fashion

Internet shopping, available for the past few decades, has radically transformed the retail landscape (Emerald Group Publishing 2013). According to Du, Lederer, and Wu (2010), the fast growth of electronic commerce was possible for three reasons. Easy and frequent access to personal computers, the expansion of broadband connections and the continuous development of the Internet have made e-commerce thrive. However, growth potential lessens and competition is intensified as online markets are evolving into maturity (Emerald Group Publishing 2013).

E-commerce has brought in an era of great opportunity for both retailers and customers (Kantar Retail and Squire Patton Boggs 2014). For sellers, it creates new paths to reaching global customers and may diminish the use of intermediaries in the supply chain. On the other hand, customers have a wider range of products to choose from and more control over information – such as prices and service details – which has made the action of searching and comparing products much more transparent (Johnston and Clark 2005; Goad et al. 2015).

Luxury is a term traditionally connected with wealth, power, premium quality, and exclusivity (Brun et al. 2008). Nowadays, however, the notion of luxury is shifting towards concepts such as value, family and wellness (Bellaiche et al. 2012). Brun et al. (2008); Abtan et al. (2014) also cite factors such as craftsmanship, emotional connection, brand reputation and sustainability, powering the experience of luxury over the mere ownership as a growing trend. At the same time, customer luxury preferences vary greatly with location, age and cultural background. Abtan et al. (2014) state that today's luxury customers are more knowledgeable about brands, more sophisticated and more demanding, nothing alike an homogenous group.

Ko and Megehee (2012) state that the luxury industry, in spite of being rather small in terms of the number of companies, is quite relevant in sales value and influence. A study by the Boston Consulting Group in 2013 reveals that aggregate annual spending on what surveyed consumers describe as luxuries topped USD 1.8 trillion alongside forecasts of a continued growth of 7 percent per year (Abtan et al. 2014). The analysis divided this amount into goods and experiential luxury, being that the highest share bands are relative to luxury cars, travel and hotels, technology, and watches and jewelry.

The possibility of shopping for items that are available in low quantities is especially relevant in luxury segments. A long tail strategy is in place when a company sells a vaster range of goods in smaller quantities (Clemons and Nunes 2011). By applying a high diversity strategy to niche

markets, companies avoid higher competition levels existent in mass markets while presenting customers with more options to choose from and charging a premium price. This can be referred to as resonance marketing, which aims at providing the perfect fit for each individual customer. Brynjolfsson, Hu, and Smith (2010) state that consumers are naturally drawn to environments with a vaster selection of both niche and popular articles, minded that there are tools to help them search swiftly through product catalogs. On the other hand, a long tail approach requires new techniques for identifying opportunities and controlling costs as operational complexity increases (Clemons and Nunes 2011).

In order for the connection between e-commerce and luxury fashion to work, requirements and expectations need to be fulfilled. Hill (1997) states that requirements, or order qualifiers, are the characteristics of a product or service that must be present for customers even considering purchasing. Order winners, on the other hand, are the features that make a customer choose to buy from a company rather than from its competition.

According to Sirkemaa (2010); Lee (2012), customers' decision to purchase is highly dependent on the perceived trustworthiness of the company. The need to provide personal and banking information concerns prospective buyers, due to the possibility of having such sensitive details shared with third parties or being victim of fraud. A study by Kantar Retail (2014) names payment and data security as a dominant issue for the next couple of years. Not being able to see and touch the products can also act as a barrier as the article's quality and authenticity cannot be verified. This factor is especially relevant in China, where counterfeited products exist in abundance (Ko and Megehee 2012). Other worries arise from the uncertainty associated with delivery time or the process of returning items (Du, Lederer, and Wu 2010).

Order winners evolve over time (Hill 1997). What was once a novelty detail may now be expected to be part of the product, or may simply have lost its value. Companies should expand their services and improve cost-to-value proportions to stay above the loyalty threshold of a consumer (Chellappa and Kumar 2005). In addition, companies should also invest in developing omnichannel strategies rather than remaining a pure player, i.e. only trading online or offline, which could be accomplished by joining partnerships with relevant third parties. This is explained through research suggesting that omnichannel customers tend to spend twice as much (Abtan et al. 2014).

A report by Kantar Retail and Squire Patton Boggs (2014) underlines the importance of growing service personalization without sacrificing economies of scale. Customers are ever more demanding of seamless shopping experiences, and vast knowledge of each target market is needed to provide it. Personalization must be accomplished without overstepping the barrier of asking for too much personal information or spamming, which would leave an uncomfortable sentiment in customers. Consistently delivering high quality services with short lead times plus reliable and helpful after-sales channels are pointed out as demands of the e-business customer (Forrester Research 2014).

2.2 The online shopping experience

Shopping does not only reflect the act of acquiring a product or service: it is about spending time searching and socializing (Kantar Retail and Squire Patton Boggs 2014). It also related with decision-making and emotions, and should be view as a process or experience (Jing 2012; Rowley 1998).

Lee (2012) divides the consumer buying decision process in five stages. The first stage is the *problem identification* during which a need is perceived as the difference between one's optimal and actual situations. Given the case that the observed gap is relevant enough to trigger action, the person moves on to *searching information* about the topic. This includes both the shopper's own opinions and data retrieved from external sources – such as user reviews, product ratings

and the media. Information then serves as input to *evaluate alternatives* and assess each choice's value according to the consumer's personal criteria. A *decision* is made on whether or not to purchase, who from and when. Finally, the consumer compares the actual experience with his *a priori* expectations in the *post-purchase behavior* stage, rating how satisfied or dissatisfied he is. Some degree of personalization can be achieved in the first two steps, as many websites allow the recording of user preferences and habits. Businesses can then highlight products and services desired by each user, making the ordering experience faster and more interesting.

According to Rowley (1998), the challenge lies in guaranteeing the success of all stages of the shopping process. Sullivan (2008) states that customer satisfaction deeply influences repurchase intentions. In addition, retaining customers can be five times less expensive than capturing new ones (Desouza 2005). Assuring customer satisfaction helps therefore guaranteeing long-term success (Vranesevic and Mandic 2005). However, Jing (2012) suggests that it is also relevant to consider the emotional and irrational part of customer behavior.

According to Hangil (2009) and Naumann and Jackson Jr (1999), customer satisfaction is described as the difference between pre-purchase expectations and evaluation subsequent to use. This balance is also described by Johnston and Clark (2005) as depicted in Figure 2.

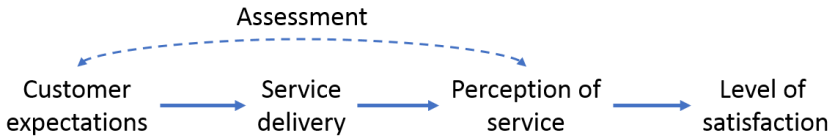

Figure 2 – Customer satisfaction. Source: Johnston and Clark (2005).

Hangil (2009) also states that retention, or loyalty, measures the likelihood of establishing a prolonged relationship between seller and buyer, through the existence of more transactions in the future. Information regarding both customers' expectations and feedback can be found relevant to quantify the topics just described, and help design new and improved products (Goncalves et al. 2011). Information originating from the customer, both pre- and post-consumption, is most frequently gathered through surveys (Balakrishnan 1999). Johnston and Clark (2005) underline the importance of periodically reviewing customers' interests and making sure that answers do not follow a pattern – which would indicate a bias in the questions themselves.

As customer expectations are increasingly refined, there must be continuous improvement in order for companies to stay competitive (Naumann and Jackson Jr 1999).

2.3 Supply chain models for e-commerce: a focus on drop-shipping

The development of e-commerce organizations modified the structure of supply chains. Hovelaque, Soler, and Hafsa (2007) analyze three possible models given the coexistence of store-based sales and online orders – store-picking, dedicated warehouse-picking, and drop-shipping.

With a store-picking model, customers' online order details are sent to the shop floor to be fulfilled, where items are picked off the shelves. Consumers would be served from the store closest to the delivery address. The fact that only one stock point is used to deal with both store and online demands decreases the total stock level required to cope with demand uncertainties.

On alternative, companies can choose to have a warehouse dedicated to dealing with online orders. Higher investment level is required to run the additional warehouse, and longer delivery times are expected as a result of centralized order fulfillment.

Lastly, drop-shipping places order fulfillment in the hands of the supplier, who manages both stock levels and order delivery. Parcels are sent directly from supplier to customer. The retailer is responsible for paying a service fee and is reduced of inventory issues such as product shortage or over-stocking. This is particular relevant for perishable or short life items, for which time savings resultant from eliminating one stop in the supply chain are most valuable.

Netessine and Rudi (2004); Peitz and Waldfogel (2012) state that companies selling one product no longer need to physically own or deliver it, given the separation of information flow and goods flow resulting from the use of Internet. The existence of multichannel sales raises additional challenges. Information regarding stock availability must be transparent and on real-time (Khouja 2001). Data synchronization and back-office integration throughout the supply chain is required to minimize the occurrence of product shortage (Hovelaque, Soler, and Hafsa 2007). The Internet has helped decrease costs related with data availability, solving some issues that formerly put a lower limit on the potential for drop-shipping (Netessine and Rudi 2004).

Drop-shipping can result in a misalignment of marketing and operations, since customer acquisition and inventory control are performed by two different players (Netessine and Rudi 2004). Another issue of relying solely on drop-shipping arises when orders' include items from several suppliers. The fragmentation of orders causes an increase of shipping costs and displeases customers, who need to arrange multiple delivery times. Special packaging for each retailer, handling of returns, payment terms, and information systems compatibility are also listed as main requirements for a drop-shipping model to be successfully implemented.

2.4 Business process modelling and reengineering

Indulska et al. (2009) define Business Process Modelling (BPM) as a graphical approach to present the way organizations conduct their business processes, generally including activities, states and control flow logic. Early tools include Gantt and flow charts, and PERT diagrams. More recently, Unified Modeling Language (UML) and Business Process Model Notation provide powerful language standards.

An objective of conceptual modelling of business processes is to allow the analysis, re-engineering and improvement, while facilitating the development of software to support the business processes in question (Aguilar-Savén 2004). Business process modelling should give an integrated perspective of issues affecting a company and provide a plan for overall improvement (Scholz-Reiter and Stickel 2012).

Zukunft and Rump (1996) state that terms such as "business process" and "workflow management" are widely used when referring to the automation of complex business processes, both in industry and office environments. The first focuses on the analysis and design of processes, while the latter involves a commitment to implement information technology-based support tools. Georgakopoulos, Hornick, and Sheth (1995) divide workflows in *ad hoc* or administrative. The first refer to workflows with unpredictable structure, for which the sequence of tasks to be performed is defined only during execution. Administrative workflows, on the other hand, have a well-defined task order that is followed for each launch of the process.

The mapping of processes through BPM can be used as input for the identification of inefficiencies and begin the cycle of Business Process Reengineering, as depicted in Figure 3. The first step is related with the identification of processes to be analyzed, followed by a mapping of the *As-Is* situation. The *To-Be* process is then designed, either as an improvement on the initial process or as a completely restructured process. Testing and implementation close the cycle.

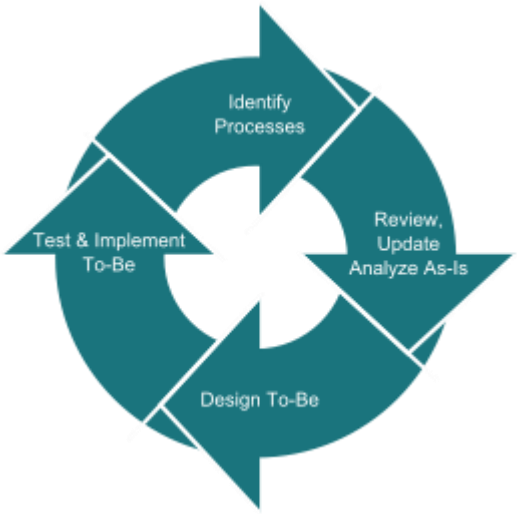

Figure 3 – Business Process Reengineering Cycle. Public domain.

Companies should optimize the way they do business, and change their information systems and applications to support evolving business processes (Georgakopoulos, Hornick, and Sheth 1995). The same authors identify several reasons for business process redesign, including "increasing customer satisfaction, improving efficiency of business operations, increasing quality of products, reducing cost, and meeting new business challenges and opportunities by changing existing services or introducing new ones". Grover et al. (1995) underline the importance of change management in a successful implementation of the improved processes.

2.5 Assessment of competitors' services

To better understand how competitor companies are diversifying their shipping and delivery services, a comparative analysis is performed. Table 1 (page 11) summarizes the findings for nine players in the luxury fashion market. Information was retrieved online from each business's website.

The three competitors providing a narrower option of shipping countries are store-based, i.e. the website was developed to enhance store sales. Players for whom the website is the main sales enabler tend to expand their service range and markets.

Most companies choose Express delivery as the base service, providing Standard service in selected regions within Europe and USA.

Companies offering a wider variety of services are currently performing delivery at off-peak hours, such as evening and weekend and collect in store. Same Day Delivery is provided in London and Munich by two companies each, while New York City is included by one company. These locations are in the vicinity of each companies' headquarters or warehouses.

A report by Forrester Research (2014) states that the majority of consumers interviewed name shipping costs as their biggest concern when buying online. All players except one have shipping cost discriminated at check-out; the remainder advertises free shipping for most countries. Nonetheless, free shipping promotions are frequently advertised in most websites and newsletters, either offered during specific days or for orders over a certain value.

Shipping prices associated to delivery within two and four days are analyzed for five key markets: Australia, China, Hong Kong, UK and USA. Annex A contains shipping prices associated with each competitor, shown in USD.

One competitor publicizes free shipping for all analyzed markets. The destination country with lower shipping cost average is the UK (USD 11.75). Companies tend to have more aggressive strategies delivering in the USA, being the country with higher number of companies offering

shipping as a courtesy service. Shipping to the Asia Pacific region is accompanied by the highest prices.

Table 1 – Competitors' shipping and delivery services

Competitor	**Farfetch**	**Net-A-Porter**	**Luisa Via Roma**	**The Corner**
Shipping to # countries	188	170	203	52
Shipping Cost	Yes	Yes (free for standard)	Free to most countries	Yes
Express Service	All	All	All	Europe, US
Standard Service	part of Europe; US	Europe, US	-	All
Same Day Delivery	-	London, NYC	-	-
Next Day Delivery	-	France, Germany, UK, most of US	-	Europe
Other services	Click & Collect	Evening delivery UK, NYC	-	-

Competitor	**My Theresa**	**Matches Fashion**	**Neiman Marcus**	**Style Bop**	**Avenue 32**
Shipping to # countries	120	203	100	150	Approx. 200
Shipping Cost	Yes	Yes	Yes (free for standard service)	Yes	Yes
Express Service	All	All	All	All	All
Standard Service	Europe	-	US, Canada	Europe	UK
Same Day Delivery	Munich area	-	-	Munich area	London
Next Day Delivery	-	Europe	-	-	most of UK
Other services	-	-	-	-	Weekend delivery most of UK

3 Current processes

In order to better understand the delivery issues currently affecting Farfetch's supply chain and to identify possible improvement opportunities, all relevant processes in place are analyzed. The present chapter starts by describing the processes for production and order fulfillment. A detailed explanation is given on courier operations and its particularities. Customer satisfaction is evaluated based on feedback and monitored Key Performance Indicators (KPI). The process for invoice verification and margin monitoring is mapped. Finally, improvement opportunities are identified.

3.1 Production process

Being an intermediary between boutiques and final customers, Farfetch's production process is unlike the ones of manufacturing companies. At Farfetch, the production process is related with updating the product portfolio available online, and includes activities such as shooting the items, image editing, composing descriptions, and uploading them to the website. Figure 4 gives an overview of these procedures.

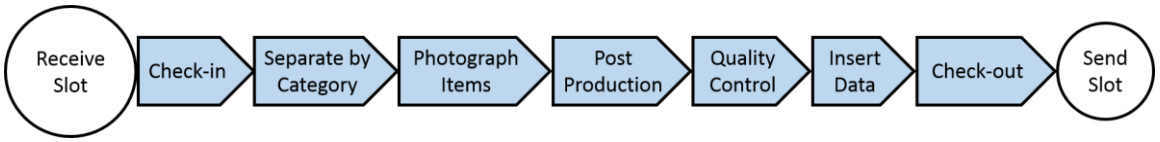

Figure 4 – Production process

When a boutique has new items to sell through Farfetch, they create a *slot* – a set of up to 50 items – and send it to be processed in Guimarães, Los Angeles (exclusively for boutiques in USA) or São Paulo (for Brazilian boutiques). Upon arrival, automatic photographs are taken of the boxes and items to confirm what effectively is in possession of Farfetch. Each item is scanned into the system via bar code and the pieces are checked for possible defects, which need to be reported to the boutique right away. The existence of duplicates is verified, as boutiques may have sent items that are already in the system and thus do not need to be produced. All duplicates follow the same physical flow as the remainder of the slot to avoid missing items at a later stage. Since duplicates do not add value to the process, boutiques are encouraged to check if the items are already in the system before including them in a slot.

After check-in, items are separated by category – male, female, and accessories – by brand and by type. For ease of transport, items are stored in rails identified by date, slot number and sending boutique. Each slot may require the use of several rails, and one rail can only accommodate items belonging to the same slot. At this point, clothes are pressed and sent to the Production department. Each category is produced in a different photography studio, where up to five different angles are styled and shot. Photos are then edited in post-production and thoroughly reviewed in quality control.

The last step in the process is to insert or correct the data that should be available online for each item. The input information is relevant for all parts: materials and precise measurements help clients decide on the best fit; knowing the adequate box size fastens the boutiques' order

processing; and the correct duties category ensures that there will be no unexpected issues with import duties.

When all rails of a slot are ready to be shipped back to the boutique, the items' condition is verified, bar codes are scanned for check-out and the slot is boxed. The timeframe agreed for the production process is of four days, after which the slots need be returned to their origin.

Farfetch's Production department in Guimarães has a capacity of producing 1,600 items per day, while its twin department in USA can achieve 400 items per day.

3.2 Order fulfillment process

The ordering process starts with the placement of an order through the website. Ordering requires a client to choose one or more items to buy, to select the desired delivery option among those available to his shipping location, and to confirm the payment method. These actions, when completed without issues, trigger the creation of one *portal order* in Farfetch's databases.

One portal order can include items from several boutiques. In this situation, one portal order is divided in its corresponding *boutique orders*. Each boutique order is then independently processed through a set of stages as depicted in Figure 5. Light colored stages are processed by the boutiques, medium colored stages are dealt with by Farfetch and the darker is under the responsibility of the courier partner.

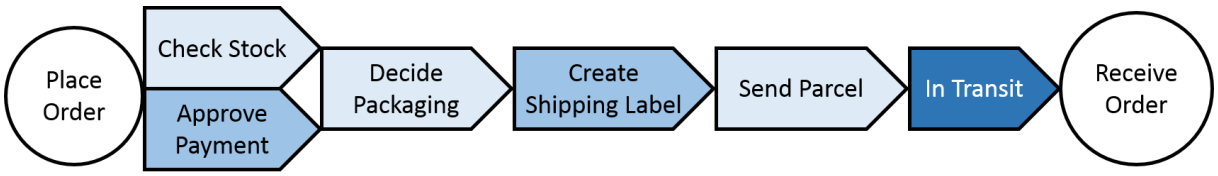

Figure 5 – Order fulfillment process

Step 1 – Check Stock

The first step required to process the order is for the boutique to verify if the item is available. Farfetch aims at real-time stock synchronization to avoid selling online an item that is no longer available. In spite of this, it is possible for such to happen. An in-store sale may occur at the same time as an online one; network connections may prevent data from being timely updated; or boutiques' clerks may fail to correctly log all physical sales into Farfetch's information system.

In case of a *No Stock*, the Item Swap procedure is set into place, reallocating the order to another boutique that confirms having the item in question. In the event of an unresolved No Stock situation the order is cancelled, and the client is duly refunded and compensated.

Step 2 – Approve Payment

In parallel with Step 1 – Check Stock, Farfetch processes the payment request. Based on the customer's previous interactions with the system, a colored *flag* is automatically assigned to the order. Each flag color is then treated differently, and payments may be automatically approved or refused. In case of an unclear situation, the Fraud team manually verifies the requests and looks for anomalies.

This step is usually faster to complete than Step 1, so that orders flow as smoothly as possible through the pipeline and boutiques can proceed to perform Step 3 without delay.

Step 3 – Decide Packaging

Farfetch supplies the boutiques with an assortment of packages varying in size. Information is made available regarding the smallest adequate box for each item, although the boutique may desire to utilize a bigger box. This can occur in case the client ordered more than one item from the same boutique. The boutique may also choose to include additional details, such as a handwritten note or a small gift, personalizing the sale and improving overall customer experience.

Step 4 – Create Shipping Label

This step relates to the creation of an Air Waybill (AWB), the document that accompanies each order. This step is mostly automatic, but some manual corrections may be required if a misspelled field is identified.

An order can be halted in this step upon customer request or legislation restrictions. Some countries impose a maximum daily value on importations and thus bigger orders may require to be deliberately delayed.

Step 5 – Send Parcel

When the order is ready to be sent, it awaits to be picked up by the courier. In boutiques with high order volume pick-ups are on a daily basis. For low volume boutiques, a pick-up must be requested through Farfetch's desktop managing tools. Once the parcel is scanned by the courier, the orders moves on to the next step and the customer receives an e-mail with the order's tracking number.

Step 6 – In Transit

A parcel stays in transit from the time it is picked up from the boutique until reception by the client.

In case a parcel goes missing a claim for lost package is created with the courier partner. A Return to Origin (RTO) can be issued if the package is held in customs or if the order is cancelled while in transit for special reasons.

3.2.1 Returns

After receiving his parcel, a customer may find that the item does not meet his expectations. Within 14 days after delivery, he can schedule a return directly at Farfetch's website, choosing to arrange a courier pick-up at home or to deliver it personally to any partner boutique. Some details, such as the number of boxes and the reason for returning, are required as well.

Orders returning to European Union (EU) from non-EU member countries are shipped via London, UK. This operational detour is used to avoid paying a new charge over duties for each return. These returns are assigned two AWB – one for the segment 'customer to London', and another from London to the boutique. Returns may be consolidated in London if multiple items are to be sent on the same day to one specific boutique, with a maximum of three items per pack. Information regarding this procedure is received at the Operations department on a daily basis by e-mail.

Upon verifying the condition of the item, i.e. that has not been used or damaged by the customer, the boutique accepts the return and a full refund is processed by Farfetch Operation's Department. Due to the complexity and number of parties involved in refunds, this step can take up to 15 days to complete.

3.2.2 VIP Service

A customer is automatically upgraded to Very Important Person (VIP) status when he reaches the threshold of purchasing USD 15.000 for the past 12 months. VIP customers are divided in four tiers based on their annual spending. Preferential service is given to these groups of customers in the form of additional Free Shipping days and discounts, as described in Table 2.

Table 2 – VIP Service

VIP Tiers	Spending (thousands USD)	Benefits
Grey	15 to 30	2 Free Shipping days and one 20 % discount voucher
Black	30 to 40	3 Free Shipping days and one 25 % discount voucher
Red	40 to 50	4 Free Shipping days and one 30 % discount voucher
Rose gold	> 50	6 Free Shipping days and one 30 % discount voucher

In addition, some VIP members also make use of a Personal Shopper (PS). PS are responsible for maintaining a close contact with their customers, and perform tasks such as advising on items based on the customer's personal taste and needs.

Upon request, a PS may complete the order for the customer. In this situation, order processing follows a more manual flow, as the PS calls the Payments and Fraud team to give notice of the order to be approved, and Partner Services to immediately verify the existence of stock in the boutique. The Courier team is then notified to speed pick-up scheduling, and the boutique is advised to send the parcel as soon as possible.

3.3 Courier operations

In Farfetch's business model, courier operations are a very sensitive issue for three main reasons.

Firstly, customers' overall satisfaction is directly correlated with their experience regarding delivery. An order delayed without notice, a lost parcel or unforeseen issues with local customs offices can negatively affect the company's image and dwindle customers' repurchase intentions.

Secondly, customers expect increasingly flexible services that swiftly accompany their changing lifestyles and needs. Adding details enhances customer perceived value of service, while not necessarily increasing service cost.

In addition, a reliable courier service is only valued when accompanied by fair prices for the expected delivery time-window. High shipping costs induce customers into searching for less expensive alternatives. Thus, courier operations need be actively managed and diversified to ensure the expected service level.

3.3.1 Courier partners

Farfetch has several courier partners for different needs. Table 3 lists the main courier services currently in use. The shipping of orders and slots inside Brazil is not considered in this analysis as they are locally managed.

Table 3 – Courier partners

Courier partner	Description
DHL	Orders of any origin and destination Slots produced in Guimarães
UPS-UK	Only intra EU orders
UPS-US	Only intra USA orders Slots produced in Los Angeles
TNT	Slots produced in Guimarães

Orders that must cross borders are shipped by DHL. Parcels travelling inside a borderless region, such as the United States of America or the EU, can be shipped through UPS or DHL depending on which offers the less expensive price for that route.

Slots produced in Los Angeles are always shipped via UPS, as these are solely from within the U. All other boutiques ship slots to Guimarães through TNT or DHL.

3.3.2 Routes and prices for order fulfillment

Farfetch operates in a flat rate concept, meaning that customers are charged a fixed average value for the shipping of their parcel instead of the exact amount. According to Acimovic (2012), this practice is commonly observed in e-tail companies.

A *route* can be defined by its service type, origin and destination. Additional information include the service provider and currency in which the flat rate is set. Routes are set based on the countries' relevance to business, such as having a partner boutique and a high number of shipped orders, or for operational reasons.

Farfetch currently makes use of 218 different shipping routes.

Origin and Destination

Routes are defined as "Domestic" when the order is shipped within the boutique's country. There are 24 routes of this type, as not all countries with boutiques possess a domestic route – this is the case of Kuwait and Saudi Arabia, for example, where national order volume is very low.

Most routes are considered of "International" origin, to simplify data structure. The parcel's origin country is only discriminated for three particular cases – Italy, Portugal, and the UK. This is directly related with a technical constraint – the more defined routes overpower least defined ones. The implementation of Standard routes originating in the three aforementioned countries has required the creation of Express routes equally defined. In addition, some boutiques based in the UK have items sent from a different location. These store-specific exceptions sum up to 63 routes.

From the destination's perspective, 44 countries are individually managed. Other nations of lower sales share are grouped into an "all others" general route, which is available in three distinct currencies. Table 4 summarizes the routes currently available.

Table 4 – Routes by origin and destination

Number of routes	Origin	Destination
24	Domestic [1]	
40	Italy	High volume country [2]
14	Portugal	
30	United Kingdom	
63	United Kingdom – store specific	
44	International	
3	International	All others

Service

The default shipping service offered is Express delivery. It is available for all countries and accounts for 80 % of all available routes. Orders shipped through Express delivery are sent by air, which places expected delivery time at 2 to 4 working days for EU and the USA, or 5 to 7 working days for other locations.

The remaining routes refer to Standard service deliveries, which is only available for selected countries. Being shipped by ground, orders may take between 5 and 7 working days to be delivered at their destination.

Service is also defined by the courier partner that performs it, as both Express and Standard services can be performed by DHL or UPS. Table 5 states the percentage of orders sent in 2014 by courier partner and service.

Table 5 – Service share by courier partner and service in 2014

Courier \ Service	**Express**	**Standard**	
DHL	96.2 %	0.1 %	96.3 %
UPS	3.3 %	0.4 %	3.7 %
	99.5 %	0.5 %	100 %

There is a clear discrepancy between the number of Standard routes existing and its usage, from 20% to 0.5%. This difference can be explained by two factors. Firstly, supply is predominantly European-based while markets with higher order share are overseas, such as the USA, Australia

[1] Domestic routes are available in: Austria, Belgium, Bulgaria, Canada, Denmark, Finland, France, Germany, Greece, Italy, Japan, Luxembourg, Monaco, Netherlands, Poland, Portugal, Romania, Spain, Sweden, United Kingdom and United States of America.

[2] In this situation, high volume countries are: Australia, Austria, Azerbaijan, Belgium, Bulgaria, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, Ireland, Italy, Japan, Kazakhstan, Republic of Korea, Kuwait, Liechtenstein, Luxembourg, Macau, Mexico, Monaco, Netherlands, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Arab Emirates, Ukraine, United Kingdom and United States of America.

and Brazil. In such cases, parcels would take roughly two weeks to be delivered with Standard service, a proposition considered incompatible with the service level Farfetch aims at. Secondly, Express routes are usually of the general type, with origin stated as International or Domestic. Only when a Standard service route is to be introduced arises the need to specify the country of origin.

One can conclude that the offer in Standard service is not yet relevant in order volume, and multiple Standard routes are needed to affect as many customers as one single Express route.

Price and Currency

Each route is attributed a shipping price to be charged to the customer. This value is calculated based on the average historical cost for that particular route, and is updated periodically.

Farfetch supports payments in eleven different currencies. When the shipping country's local currency is not available, the price is shown in USD, GBP or EUR based on geographical proximity.

Capped shipping

Customers can include items from multiple boutiques in the same basket. Each boutique order is shipped independently from the remainder, which results in the customer paying multiple shipping fees.

With the objective of enlarging basket size and study customers' response to a different shipping cost calculation method, a maximum shipping price point is set for portal orders. As it is currently under testing, this feature is only available for orders sent to France and Germany.

The total amount to be paid for shipping can be translated by equation 3.1. In practice, it means that customers in Germany and France do not pay over EUR 35 at check-out (capping value).

$$TSC = Min\ (\sum_{i=1}^{n} s_i\ ; CS) \tag{3.1}$$

where:

TSC is the total shipping cost to be paid by the customer
n is the number of boutique orders in the customer basket
s_i is the shipping cost for boutique order *i*
CS is the capping value for the customer's country

3.3.3 Duties

When posing an order a client is informed whether the final price includes Delivered Duties Paid (DDP) or Unpaid (DDU), depending on the order's shipping country. The former implies that the client pays Farfetch the sum of item value, shipping and estimated duties, who is then responsible for dealing with DHL's duties charges. On the other hand, DDU means that the client only pays Farfetch the item value plus shipping, and will later receive an invoice to pay the respective duties to DHL or to the local customs bureau.

In order to estimate duties to be charged for an order, Farfetch has a supplier to provide approximate duties' rates by importing country. For each country, over 700 duties' categories are defined based on item type – such as clothes, shoes, jewelry; material – such as cotton, silk, leather or fur; and item value.

According to van Heel, Lukic, and Leeuwis (2014), clients are discouraged to buy in situations where the final purchase cost in uncertain. In spite of DDP meaning a higher expense paid initially, it eliminates unknown costs that can sum up to large amounts in the case of expensive items and particular materials such as leather or fur. On the other hand, including a country in DDP is costly and time consuming for both Operations and Technology teams. This is the reason why many countries remain in DDU.

At first, the list of countries on DDP was created based on sales volume. Nowadays, all countries that host a boutique are included in DDP even if sales for that location are not particularly high. This is needed to ensure the Click and Collect service described in section 3.4.2 runs smoothly.

Russia has special regulations in place regarding duties taxes, where duties are applied if a citizen imports over a maximum value per month. Under that price point, parcels are exempt from duties and other taxes; from that point on, any incoming order is subject to duties. This means that it is impossible for Farfetch to control whether or not a parcel will pay duties to customs. Additionally, some customs bureaus do not properly deal with the courier partner that currently operates routes to Russia. In practice, this means that DHL cannot correctly ship orders to some zip-codes in Russia, even if areas are not commonly considered as remote locations.

3.4 Delivery options

Delivery options describe how customers get in possession of their orders. At the moment there are two available possibilities – *Direct Delivery* and *Click & Collect*.

3.4.1 Direct Delivery

The most commonly chosen delivery method is for the courier to deliver the parcel straight to the customer's address – being it home or office. Depending on the boutique's location and the customer's shipping address, it may be possible to choose between two shipping services – Express or Standard.

3.4.2 Click & Collect

On alternative to a Direct Delivery the client may prefer to have his order delivered to a boutique of his choice, for the cost of a Direct Delivery. When the order has arrived and is ready to be collected, the client is informed and can retrieve it within the following 7 days. Click & Collect also allows for in-store returns as an alternative to pick up at the customer's address. It accounts for 0.6 % of all deliveries since its implementation in September 2014.

This shipping method can be a good option for customers who do not want to stay at home and wait for the courier, or who are working during the available delivery hours. However, it is not suitable for remote locations. It is also a great opportunity for boutiques to interact with their Farfetch seemingly virtual clients and pamper them, increasing the customer's perception of the overall experience.

3.5 Results of Same Day Delivery testing

Same Day Delivery has been under testing since September 2014 in New York and Los Angeles (USA), London (UK) and Paris (France). As these cities house a significant number of boutiques and customers, they were deemed appropriate to serve as trial locations.

The process of identifying and managing test orders is manual. Incoming orders are reviewed throughout the day by a Supply Operations technician, and same-city deliveries are identified. Orders placed during the weekends or later than a certain limit hour are excluded from testing, as courier service is incapable of delivering in those situations. In the remaining cases, a Partner Service representative contacts the boutique to verify stock availability. Only then the customer is proposed a free of charge service upgrade to Same Day Delivery.

Figure 6 shows the proportion of orders delivered during the same day, and the reasons why remaining cases were unsuccessful. From a total of 628 orders within the cities of study, 53 % were successfully delivered in the same day. Most cases when Same Day Delivery was not

possible were due to boutique-related reasons such as a No Stock, items coming from a location other that the store venue, or untimely response. 39 % of orders were deemed unsuitable for operational reasons as they were placed after the latest courier pick-up hour, on weekends or during Christmas holidays – testing was on hold during peak periods so as not to pressure boutiques' performance. In a smaller percentage of cases, the customer cancelled the order, did not want the upgrade, or arranged for Click & Collect. Most contacted customers gave positive feedback regarding the service upgrade.

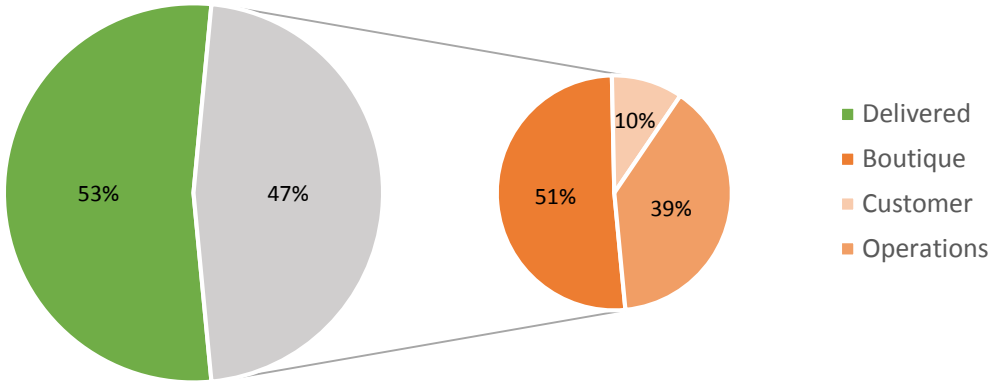

Figure 6 – Same Day Delivery test results

Performing a test period was of high importance to ensure that boutiques could fulfill orders quickly enough and would get accustomed to the process, while assessing customers' feedback on the new service proposal. In addition, it provided input about pressure points of the operation that are most relevant when implementing the complete operation.

3.6 Invoice verification and margin assessment process

Courier companies make invoices available at their website, in a spreadsheet format. Each invoice can refer to parcels sent up to six weeks before. Separate invoices are provided for duties and shipping costs (including returns). Due to volume significance only DHL invoices are currently uploaded into the DB.

Invoices are then searched for discrepancies by the Finance team and by a business analyst from the Operations team. Finance is responsible for reviewing totals directly on the invoices and identifying whether significant amounts are mischarged. On the other hand, Operations is responsible for fine-picking which AWB are dubious in a disaggregated excel file. The process of identifying incorrect charges is different for duties and shipping.

Shipping charges are considered incorrect in the following situations:

- Service selected by the courier is incorrect, such as "medical" or "time-bound";
- Parcel is not connected to Farfetch;
- Charged weight is extremely high;
- Charged value is extremely high for the respective route and weight.

In the case of duties, misplaced charges are usually detected when:

- Duties are charged for parcel entering a country in DDU;

- Duties' rate charged is extremely high for the respective customer country – the expected limit value may be of 50% when importing into the EU, but of just 7% for Middle East countries;
- Proportion between duties charged by courier and to the customer is extremely high – possibly indicating that the item was billed at the wrong duties category.

Information is passed along to the Finance department to cancel payment on expenses considered wrong or ask for a credit note. The process is summarized in Figure 7, and currently takes around 20 to 24 hours to complete.

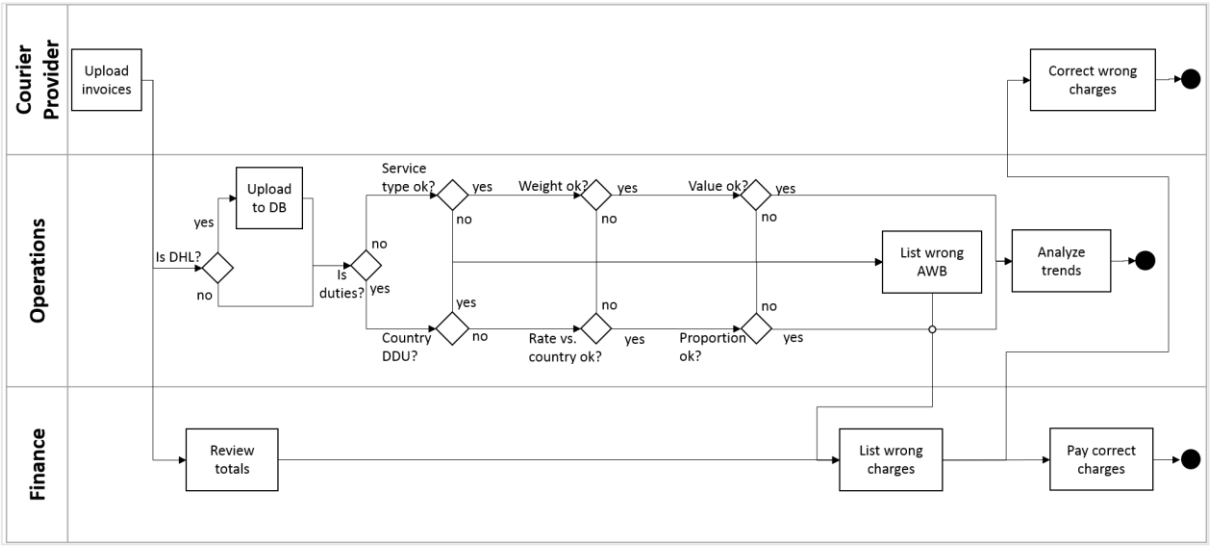

Figure 7 – Invoice verification process

Besides identifying localized problems, the analyst also looks for trends in relevant sets of data and calculates operational margins for each customer country. The comparison of actual and predicted margins over shipping and duties expenses, and quantifying the impact of marketing measures, such as a Free Shipping promotion day, helps high management stay up to date and react swiftly to market changes.

3.7 Customer satisfaction evaluation

Two specific KPI are useful to understand how satisfied customers are with the current service, and how it is affected by deliveries.

With the processing of an order, the system automatically records the time spent in each step mentioned in section 3.2. In particular, "Time Spent Step 6" measures the time that an order spent under courier responsibility. This metric is also known as "Time in Transit".

After receiving the order, customers are invited to answer a satisfaction questionnaire. Among others, it requires the customer to rate his overall satisfaction with Farfetch (in a scale of 0 to 10) and with the delivery (scale of 1 to 5). Figure 8 relates the average "Time Spent in Step 6" for each Rating value. The data displayed was collected from all answered questionnaires since 2012, which has a response rate of 4.2 % in the stated period.

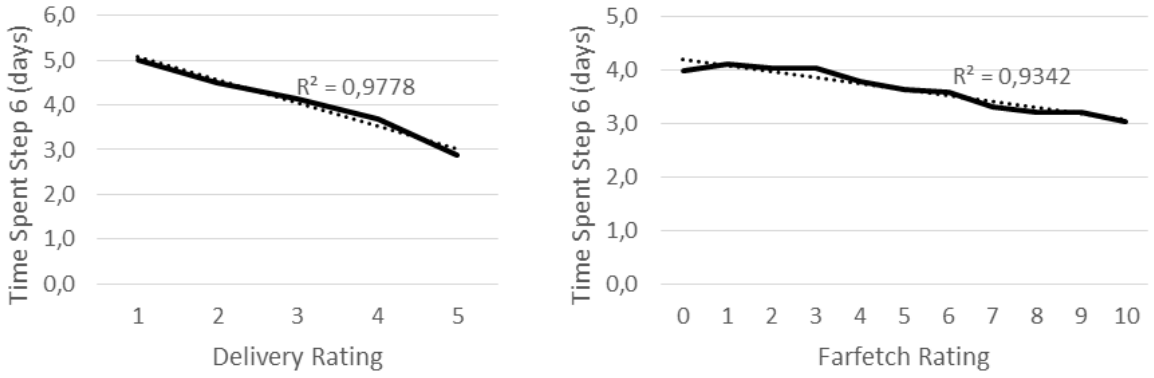

Figure 8 – Time Spent Step 6 vs. Delivery Rating (left) and Farfetch Rating (right)

It can be concluded that customers' satisfaction regarding delivery is highly influenced by couriers' delivery speed. In addition, it shows that customers image of the company and overall service is likewise affected. This situation is particularly sensitive, as Farfetch has little power over its courier partners' performance.

3.8 Improvement opportunities

The practices described suggest the existence of opportunities both for improving processes and diversifying the service offered to customers. These are grouped into three categories.

3.8.1 New Standard routes

In the information collected, such as stated in Table 5 (page 17), there is a clear predominance on the offer and use related to Express service over Standard, as the latter corresponds to 0.5% of orders sent in 2014.

When customers buy from different boutiques they are charged multiple shipping services. In addition, customers could choose to buy from competitor companies if the same items were available for cheaper shipping costs. For these reasons, Standard routes should have a more significant presence.

3.8.2 New delivery options

In order to stay competitive and innovate in the e-tail environment, new delivery options should be developed. As stated in section 2.5, some competitors already make use of differentiated and more flexible offers. The company expects to implement Same Day Delivery and a Yacht Service to tackle this issue.

Same Day Delivery could be made available in cities where internal demand is relevant to the overall sales values. Some competitors have this type of service available in one or two locations. However, Farfetch has the advantage of using a drop-shipping model. It should allow enough flexibility for Same Day Delivery to be applied in a vaster number of cities deemed strategically appropriate. In addition, the results of testing are positive and show that customers appreciate the service enhancement.

When analyzing customers lifestyles, a new delivery option came to light. Nine out of ten of the most exclusive marinas are in the Mediterranean area, being that most of them have a partner boutique in the whereabouts. It would be interesting to explore the idea of having orders delivered directly to a customer's yacht, allied with an overall more personalized service.

3.8.3 Invoice verification process

The process described in section 3.6 needs to be improved on several aspects, since it acts not only as a cost control tool but also a strategic development one. The company's fast growth must be accompanied with restructuring processes that are no longer efficient for higher order volumes.

The current method is based in manual and repetitive inspection, which has proven highly time-consuming. It also implies that each analyst may identify different orders as incorrectly charged and that there is no guarantee on whether major deviations have been dealt with. These points could be controlled by implementing some level of automation on calculations and reporting to ensure uniformity and accuracy of the information available while maintaining a history of costs.

A method for the automatic identification of possibly wrong charges should be designed. It is not only necessary to verify charges summing to large amounts, but also to compare each charge with the correspondent theoretical price. Small deviations in a very large number of shipments may result in significant values.

Lastly, running these tasks on a spreadsheet file requires a high processing capacity. With over 50.000 shipments per month, it is not straightforward to cross-check orders from multiple data sources. A different processing format should be designed, considering the expected increase in order volume and that an historical perspective on the data is relevant for the analysis.

4 Proposed changes

The changes proposed comprise three lines of action. Firstly, the increase of Standard routes' availability is studied, enhancing the diversity and flexibility of services provided. Secondly, the possibility of introducing Same Day Delivery and a Yacht Service on selected locations is developed to meet the company's desire of providing innovative and differentiated service. Lastly, the process of invoice control and margin assessment is restructured. A tool is developed to allow the automatic sorting of possibly wrong charges and produce standard reports, which are used as input for further analysis.

4.1 New Standard routes

The analysis of available routes in chapter 3.3 indicated the need for improvements in several aspects, as shipping seems to be a stress point for the customer. It was deemed useful to increase the number of Standard service routes. By doing so, customers can choose to pay less for shipping if interested, while maintaining the option of Express delivery in situations of time constraints. As Standard routes are operated mainly by ground, and there is already one for US domestic orders, this study focuses on the region of Europe.

The process of implementing new routes encompassed five stages, as detailed in Figure 9.

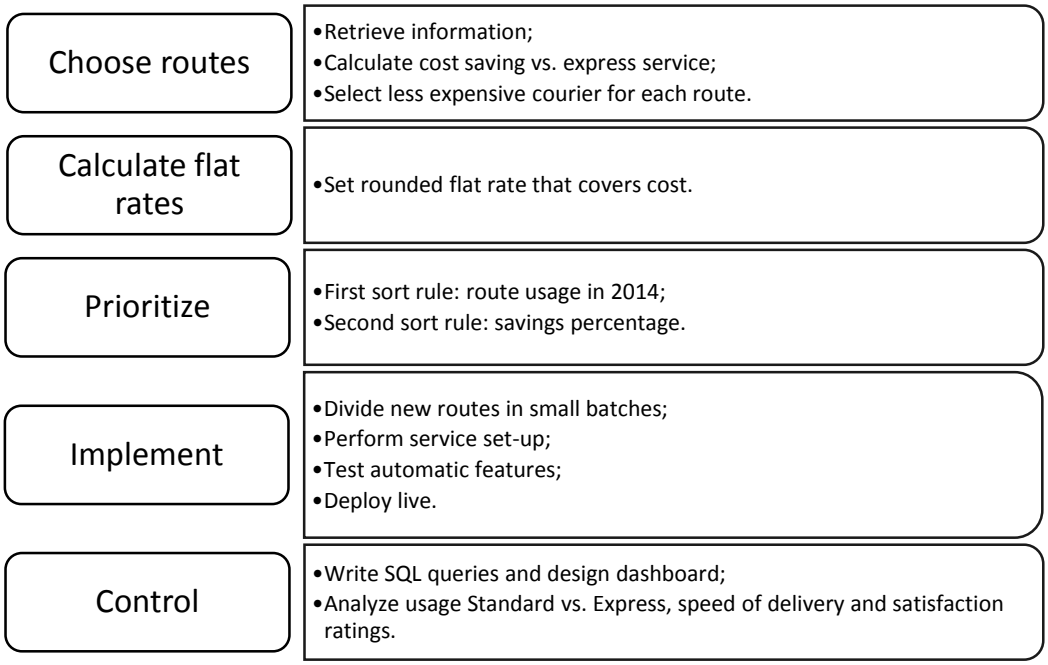

Figure 9 – Methodology for new Standard routes' introduction

4.1.1 Choose routes

The courier partners considered are UPS and DHL, as both are already in business with Farfetch. Economies of scale make it possible for partners to apply discounts to base prices, and service has already proven to be reliable in the past.

The cost of shipping a parcel is calculated as expressed in Equation (4.1), being function of the base price, extra charges of fuel, and destination's Value Added Tax (VAT).

$$C_{o,d,w,c} = BP_{o,d,w,c} \times (1 + ec_c) \times (1 + VAT_d) \quad (4.1)$$

where:

C is the cost charged by the courier *c*, between country of origin *o* and destination *d*, for a parcel of weight *w*

BP is the base price for courier *c*, between country of origin *o* and destination *d*, for a parcel of weight *w*

ec is a fuel extra charge applied by courier *c*, $0 \leq ec \leq 1$

VAT is the value added tax for the country of destination *d*

o is the country of origin

d is the country of destination

w is the parcel weight

c is the courier partner providing the service, c ∈{DHL, UPS}

Information regarding base prices and extra charges was retrieved from the Courier Team. Three factors are taken into account for the calculation of base prices – country of origin, country of destination, and parcel weight. Extra charges correspond to 11% for DHL and 9% for UPS, which are related with fuel consumption.

Farfetch operates in a flat rate price model, in which the same price is applied for all orders regardless of their actual weight. In consequence, the average order weight needs to be calculated to adjust cost calculation accordingly. It is usual for the average order weight to fluctuate around the year, as items from the Spring Summer season tend to be lighter than those of Autumn Winter season. To take this into account, order's weight distribution is studied considering all orders sent in 2014 for intra-European routes. Considering that no major variation in order weight is foreseen from year to year, order weight distribution is analyzed for 2014. The distribution shows that most orders weigh between 1.5 kg and 4.0 kg, while a low number of orders weigh over 6 kg. The value that compensates weight variation is calculated to be 3 kg.

The comparison between courier prices was made on a route by route basis. For each of the 48 origin-destination pairs to be studied, standard prices are listed and compared to the ones for Express service in use. Table 6 shows an example of this method.

Table 6 – Example of route prices (in GBP)

Weight (kg)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A - Express	12.71	14.84	16.91	18.9	20.87	22.71	24.55	26.4	28.24	29.83
B - Standard	4.05	5.43	6.81	8.18	9.25	10.14	11.05	11.96	12.86	13.76
	-68%	-63%	-60%	-57%	-56%	-55%	-55%	-55%	-54%	-54%
A - Standard	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81	7.81
	-39%	-47%	-54%	-59%	-63%	-66%	-68%	-70%	-72%	-74%

Prices per parcel weight for each courier partner are listed, alongside percentages indicating the savings when compared to Express service. For this particular case, it can be observed that UPS

Standard offers better rates for lower weight, while DHL Ground is more competitive for heavier parcels. Since the average weight to be considered is of 3 kg, UPS is chosen to operate this particular route.

There are situations in which both proposed prices for Standard routes are not significantly lower than their Express correspondent. Routes are excluded from further analysis if savings from Standard are lower than 30% when compared with Express, which is the case of 7 routes. In the remainder 41 routes, the least expensive courier partner is chosen to operate it.

4.1.2 Calculate flat rates

Farfetch does not aim at making a profit out of shipping operations, as increasing prices for a profit would hurt the company's competitiveness. In addition, flat rates should make it simpler for customers to understand how much they are going to be charged for shipping in one portal order. It is set that one country of destination should optimally have at most two flat rates – one for the domestic route (when existing) and one for international ones. Another consideration is setting the flat rate for rounded values, such as GBP 10.00 or GBP 10.50.

4.1.3 Prioritize

Before moving along to implementation, it is necessary to define the order in which routes would be introduced live. The process of implementation adds complexity to courier operations and may result in issues that need to be dealt with manually, such as orders being held in Step 4 – Create Shipping Label. It is thus preferable to introduce new routes a few at a time. Priority rules are defined to ensure the introduction is made taking into account an estimated level of impact.

Firstly, routes to more relevant markets reach more customers and sales quantities. Volume relevance is estimated by the number of orders sent in 2014 for each route in analysis. Four intervals are considered: < 100 orders, 100 to 499 orders, 500 to 999 orders, and >1,000 orders. At the same time, routes with higher savings versus the Express service would make a stronger impact in customers. As such, the ratio between Standard and Express flat rates is calculated.

Routes are thus prioritized by these two parameters.

4.1.4 Implement

Introducing new routes implies a setup process in Farfetch's back office and, in the case of UPS, also in the partner website.

Setup is related to updating information regarding *services*, *accounts*, *routes* and *boutique information*.

A 'service' corresponds to the partners' service description that should be written on the AWB – such as DHL Express, DHL Economy or DHL Ground. When a new service is to be used, it needs to be uploaded to the DB.

An 'account' indicates where the shipment should be billed at. DHL operates on a unified structure, meaning that all routes connect to the same account for billing purposes. However, UPS operates in a country-based structure with some particularities: as an example, prices are given in the country of origin's currency. Additionally, UPS requires the existence of one account per pick up point, i.e., each boutique should refer to one account. Hence, one account must be set up for each boutique in the partner's website.

Farfetch's account structure for UPS needs to coincide with what is available on the partner's website, allowing a correct communication between the two systems. To enable it at Farfetch

back office, one boutique per country is chosen as the *parent account* – to where all invoicing will be linked, while others are consider *sub accounts*.

As stated in section 3.3.2, many routes are of the type 'from International – to Country', i.e. do not have a specific country of origin defined. This sort of routes is overridden by ones with higher definition, independently of service type. In practice, this means that a Standard 'Country A – Country B' route would override an Express 'International – Country B', and only the Standard route would show as available on the website. To overcome this issue, one additional DB line needs to be created for a fully defined Express route, making sure both options appear at check-out.

From the boutiques' perspective, it is required to update pick-up information as depicted in Figure 10. The courier partner should be added in situations where the boutique does not have any route operated by it. A time window for pick-ups is chosen, usually during the afternoon to allow for the preparation of orders to be sent. Boutiques with high order quantities are assigned daily pick-up services; the ones with lower volume have pick-ups scheduled automatically when an order is created with that courier.

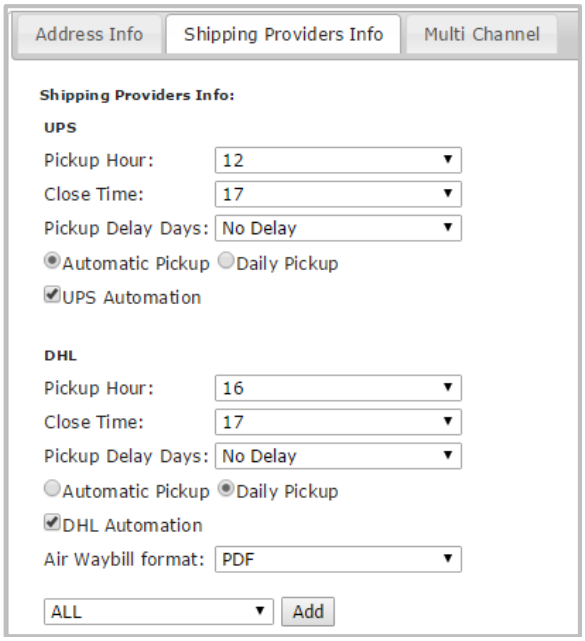

Figure 10 – Boutique information update

Lastly, tests are performed in Quality Assurance environments to verify the connection to the courier partner website – which allows the generation of the AWB and automatic scheduling of pick-ups.

To finalize the process and enable the new route on the website, the flat rate details must be inserted.

4.1.5 Control

Control processes allow the measurement of the impact of introducing new routes, verify service level and study customer feedback. To ensure ease of access to the information for the involved team members, a dashboard was created using Tableau software as shown in Figure 11. All information relates to the four previous weeks to allow comparison, and data is automatically refreshed on a daily basis. Tableau allows the user to interact with the Dashboard, with options to filter information or drill down to order level.

On the top left corner, information is given regarding the number of times each route was used in Standard and Express services. On the right side, a counter indicates the total number of

times the service has been used and if the feedback survey was filled up. This helps assert if ratings can be considered relevant or if they are biased due to a low number of answers.

On the bottom left side, the average time spent in transit (thin line) and average time to deliver (thicker line) are listed by provider. Customer feedback, given through an e-mail survey, is plotted on the middle right side, relating Delivery and Farfetch Ratings with the courier that performed the service. Lastly, the average time spent in transit is defined by route, with the objective of identifying situations when routes do not follow the same trend due to localized issues, such as if one country is under extreme weather conditions.

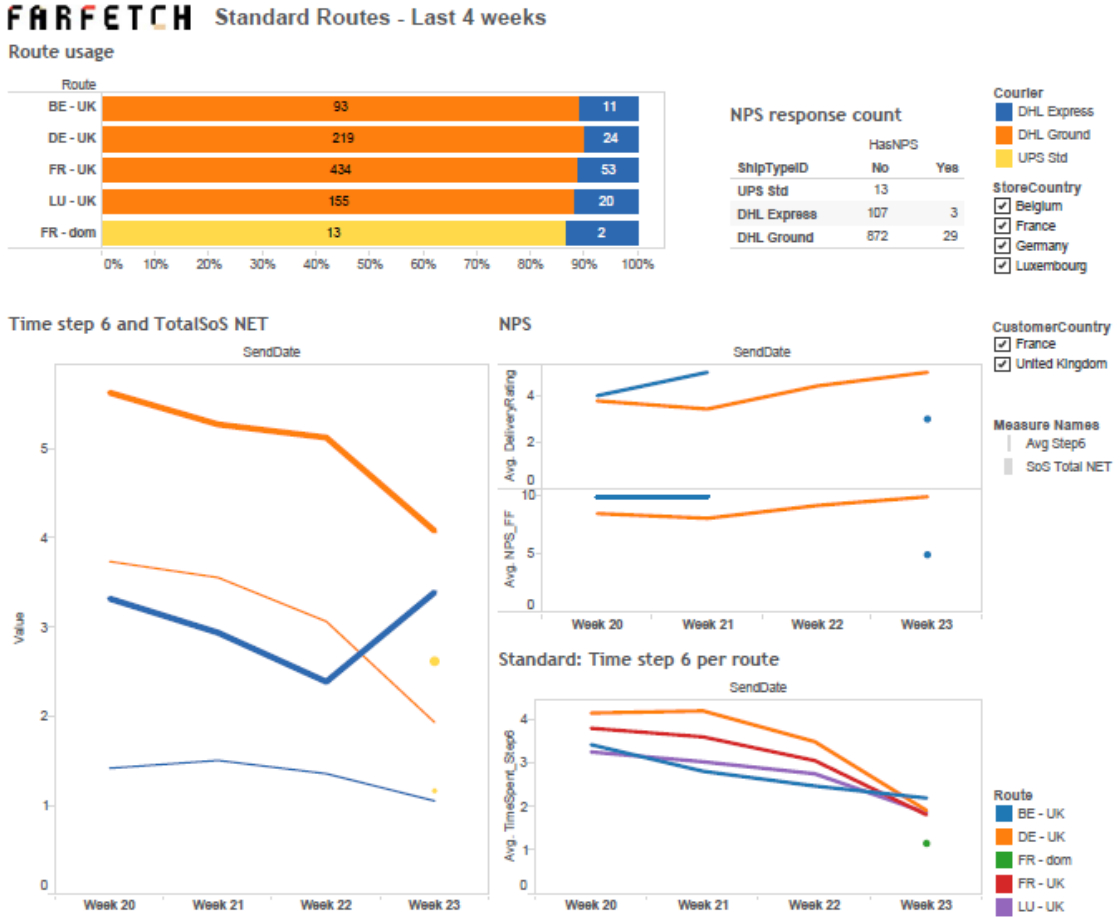

Figure 11 – Control dashboard for new routes

Courier providers are directly responsible for 'average time in transit'. On the other hand, 'time to deliver' reflects both boutique and courier performance. From the report for week 23, it can be concluded that one customer with Express service was particularly dissatisfied, as the survey response was mid-scale. Analyzing the time spent in transit and time to deliver allows the conclusion that the courier was in fact performing regularly and the issue was on the boutiques' side. This particular case was due to the beginning of sales on week 23, which affected boutiques' response time to incoming orders.

One other detail worth mentioning is that information is given by the week of pick-up, meaning that metrics for the past weeks are dynamic instead of static.

4.1.6 Results

From the 41 routes considered appropriate to implement, 12 are currently fully operational.

When trying to introduce DHL Ground routes with Spanish origin, it was found that the local operator, i.e. DHL Spain, separates pick-ups of Express and Standard services. Given that all

boutiques have daily pick-up by DHL, the system does not allow the scheduling of a manual pick-up with the same courier. In addition, order status was not being correctly updated as orders appear as never having left the boutique in Farfetch's tools. While these issues are not resolved by the courier partner, it is considered best not to implement DHL Spain's 8 Standard routes.

The remainder 21 routes will be implemented in the future. The account set-up process has proven time-consuming, especially for UPS-operated routes. Initially, many countries did not have any UPS route and thus all boutiques were required to be entered in the system. In addition, the existing list of boutique account numbers provided by UPS was not updated to include the most recent ones. These two factors culminate in requiring interaction with the courier partner more often than expected, and delayed the process of implementation.

4.2 New delivery options

Developing new and upgraded services is of paramount importance to stay competitive, as customers expect more and more flexible and personalized services to meet their needs. As such, two new delivery options envisioned by Farfetch's C-level require further studying.

Same Day Delivery is currently offered by 3 competitors in the metropolitan areas of London, New York and Munich. Farfetch intends to implement it simultaneously in a wider range of cities, relying on its partnerships with globally spread boutiques to make it possible. As stated in section 3.5, test deliveries have been performed in four cities. Feedback from all parts involved is taken into account to design a process that is feasible by the boutiques, and meets the customers' expectations on fast and reliable deliveries.

The Yacht Service, on the other hand, is viewed as a service upgrade destined to high-end VIP customers. Based in part on current processes already available, such as the VIP Service, this delivery option would allow a more personalized and curated shopping experience.

The methodology followed to develop both options is depicted in Figure 12. The intended range of application is stated, and the necessary requirements to correctly implement them are studied. Possible locations to launch each service are then analyzed taking into account both internal and external information, such as past sales volume, boutiques' knowledge of the local market, public reports and general news. Processes are defined when the regular information flow needs to be adapted. Finally, a set of topics requiring further development by other teams is listed.

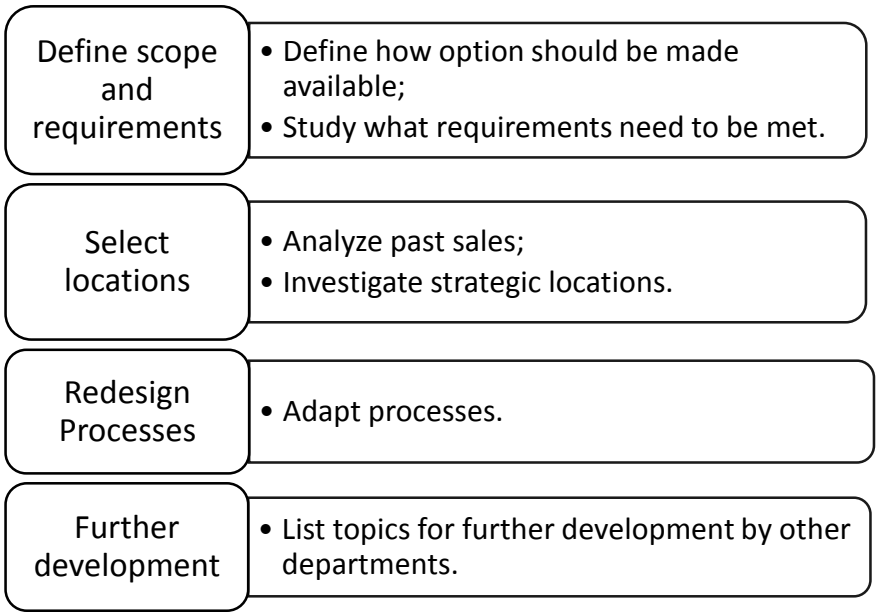

Figure 12 – Delivery options development methodology

4.2.1 Same Day Delivery

The present section intends to determine in which cities it would be viable to implement Same Day Delivery, identify what requirements must be met by orders, and list the software development needed to correctly deploy it in the future.

Scope and Requirements

Same Day Delivery is intended to function as a delivery service available at check-out. For a premium price, the customer would receive his items at the selected delivery address within hours of placing the order.

Several requirements are detected by brainstorming the involved parties, as follows:

- Same city deliveries – to ensure that distance from the boutique to the delivery address does not compromise the agreed time window for delivery;
- Orders placed before a limit hour – allowing the store enough time to process and pack the order, and have it ready at courier latest pick-up hour. Orders placed after this hour can only be delivered in the following working day;
- Boutiques' fast response – partners must be prepared to prioritize orders and guarantee service level;
- Reliable courier available – with flexible operations, on-time delivery at a competitive cost;
- City with relevant volume of local orders – enabling service choice by a fair amount of customers.

Select locations

It is necessary to determine which cities are suitable to implement Same Day Delivery in. Sales for which boutique and delivery are located in the same metropolitan are accounted for. Figure 13 shows number of orders per city placed under these conditions during 2014, as well as the correspondent items' value. Cities are sorted by decreasing sales volume, which is shown in accumulated value.

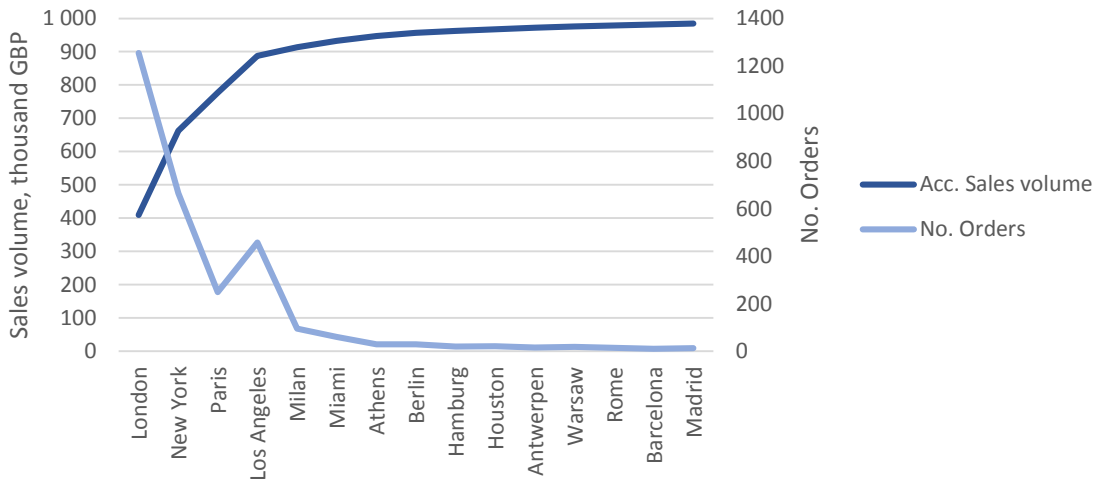

Figure 13 – Same city orders in 2014

The distribution follows Pareto's rule, i.e. a small number of cities is responsible for the majority of sales. As expected, the four cities comprised in the test period are those with higher sales volume. One detail worth noting is the fact that the average order value in Paris is higher than in all other cities. This leads to Paris having a slightly higher sales volume than Los Angeles with a quite lower number of orders.

Even given the growth expected for the following years, it is considered that not all potential customers would choose Same Day over the already existing options. It is thus considered that cities with less than one order per week in 2014 are not adequate to proceed with implementation. This translates into choosing London, New York, Paris, Los Angeles, Milan and Miami as cities to implement Same Day Delivery in.

Processes

Ordering and order fulfillment processes are the same as described in section 3.2, as Same Day Delivery is planned to be operated throughout the whole year and no restrictions other than the boutique and delivery address combination apply.

Further developments

Two considerations need to be addressed before Same Day Delivery can be implemented.

The first issue relates to the check-out and user interface. The system must be able to recognize whether or not Same Day Delivery is available for the customers' shipping location. At the moment, only the country of shipping is shown as a drop-down list, being that the customer can type freely in all other fields. There is no control on the relationship between zip-codes and cities, or if city names are misspelled, which is also one of the reasons some orders need intervention on Step 4 – Create Shipping Label. A method for correctly identifying the shipping city or metropolitan area is required, such as implementing fuzzy search techniques.

The second situation is related to the boutiques' workflow. Same Day Delivery is only possible if boutiques can respond quickly to new incoming orders and are able to prioritize them. To do so, they should be notified of orders' urgency via Farfetch's Desktop Manager. The Software should be updated to incorporate this feature.

4.2.2 Yacht Service

The present section aims at developing the idea of enabling deliveries at marinas, for a specific group of customers. Therefore, scope and requirements are detailed, followed by the selection of marinas that could be integrated in the service. Given that the general process for order placing is not suitable, an adaptation needs to be designed. Lastly, further development needs are listed.

Scope and Requirements

The Yacht Service is viewed as an extension of the VIP Service and would be announced via e-mail to VIP customers. Availability is seasonal and restricted to the summer months. The upgrade of delivering at a marina is intended to be free of charge, as customers would pay the same amount as a Standard or Express delivery to the destination of choice.

Depending on which boutique sells the item, two situations can occur. If the item is in the boutique closest to the marina, then the last mile is performed by the boutique's employees, who deliver the parcel on hand to the customer's yacht. This is possible due to the fact that many boutiques are actually located within short distances of the marinas. Cases when orders are shipped from further away are delivered by courier.

Requirements for the implementation of the Yacht Service include:

- Participation of boutiques near relevant marinas;
- Marinas' acceptance of deliveries – either by the marinas' own staff or allow the entrance of an external person;
- Boutiques' assurance of delivery to nearby marina;
- Order ready to deliver during the days the customer is at the marina.

Select locations

A news piece by Forbes (Thomas 2013) states that the most exclusive marinas are located within the Mediterranean Sea, describing the popular trend among wealthy people to spend summertime in the region. Boat International (2015) also portrays the Mediterranean as home of the most sought after yacht mooring locations, both marinas and desert islands. Considering that the vast majority of Farfetch's partner boutiques are located in Europe, and some quite near popular mooring locations, it is perceived that a beneficial connection between the two can be achieved

A group of potential marinas is contacted to ensure that deliveries are allowed within the premises, and to verify the existence of any local impediment. Local boutiques are also surveyed to assess their interest in being part of this service and whether they could perform the delivery without courier service.

Figure 14 shows the location of the chosen marinas and surrounding boutiques.

Figure 14 – Location of marinas and surrounding boutiques

Process design

Order placement is to be made through the VIP Service channel. The process is detailed in Figure 15.

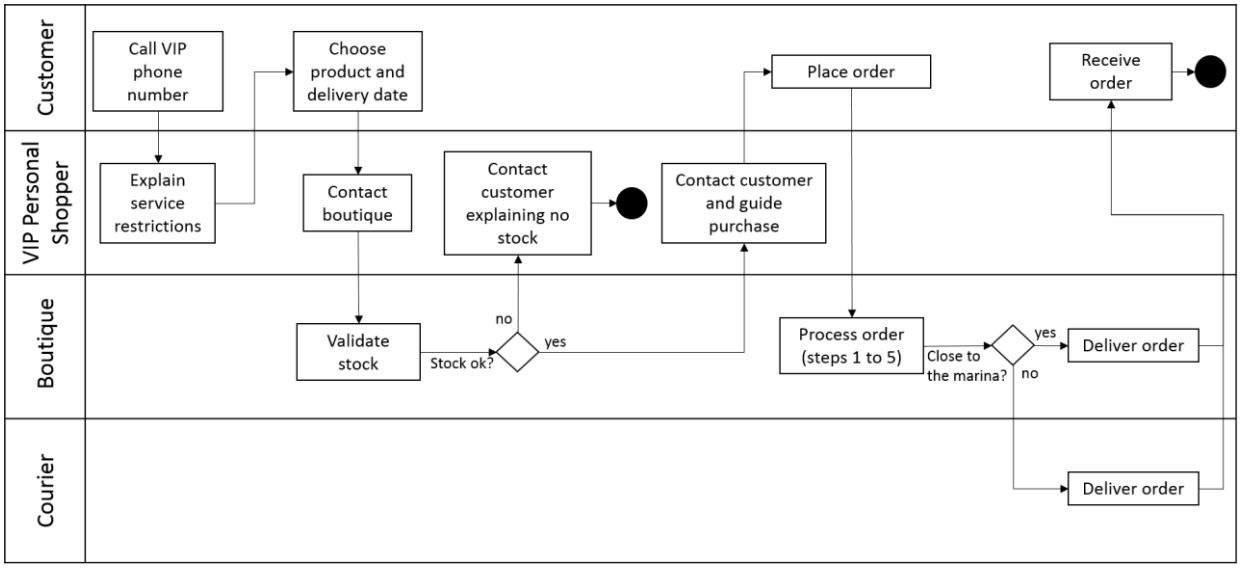

Figure 15 – Yacht Service ordering process

VIP customers are notified of the new service via e-mail, and those interested contact PS team by phone. Limitations to service are explained, as delivery has to be possible within the period of time the customer is moored at the marina. Items' origin influences the time the order would be ready for delivery. If, for instance, the customer is moored in Capri (Italian island in the Mediterranean) and requires delivery on the following day, then the item needs to be available at a partner boutique in Capri. Based on these restrictions, the customer chooses the products and the delivery date that best suit his needs. The boutiques are then contacted to verify the existence of stock, and the customer is guided to proceed with the payment via website.

The order is then normally processed and sent to the boutique closest to the marina. When the boutique location allows it, delivery is made by a boutique's employee without requiring additional courier services. When this is not possible, the courier partner is informed and pick-up is scheduled. Delivery is made directly to the customers' yacht.

Further developments

Given seasonality and customer restrictions, no major software development is needed to start operating the Yacht Service. Contact with customers – especially VIP ones – must be planned with great care. As such, Marketing Department's feedback must be taken into account to structure communication with the VIP customers, and the PS team should be given a workshop on how to deal with service particularities.

4.3 Invoice verification and margin assessment process reengineering

Business growth forecast for 2015 corresponds to an estimation of GBP 15 million spending with courier costs. The rapid rise of charges, by both number of invoice lines and total amount, translates into an increased difficulty in detecting wrong charges and in controlling operational margins for each customer country. In addition, it is also relevant to control the cost structure and how it evolves with time.

The process described in section 3.6 comprises a set of repetitive tasks, and is becoming inefficient in terms of data processing to produce relevant reporting information. Developing a more automated process is deemed of high priority to decrease the time spent in such tasks and to ensure monitoring of all invoice lines. The present section aims at improving the invoice verification and margin assessment of services provided by DHL, which represent 85% of total courier-related costs.

Figure 16 explains the methodology followed toward the development of an automated tool for controlling and enabling a simplified process for monthly reporting.

The first step relates with choosing the appropriate tool, within those available, to set up the automatized tasks in. Reporting needs are then listed to ensure that relevant information is gathered and to structure the format in which it will be shown. Three auxiliary tables are then created in the DB to allow maintaining relevant data that was not made available before. The task of identifying wrong charges is designed by translating known causes of errors into programmed filters. Three dashboards are structured to display the information considered relevant for the monthly margin assessment and serve as input for reports and further analyses. Lastly, the process to be performed monthly is redesigned to accommodate the changes described.

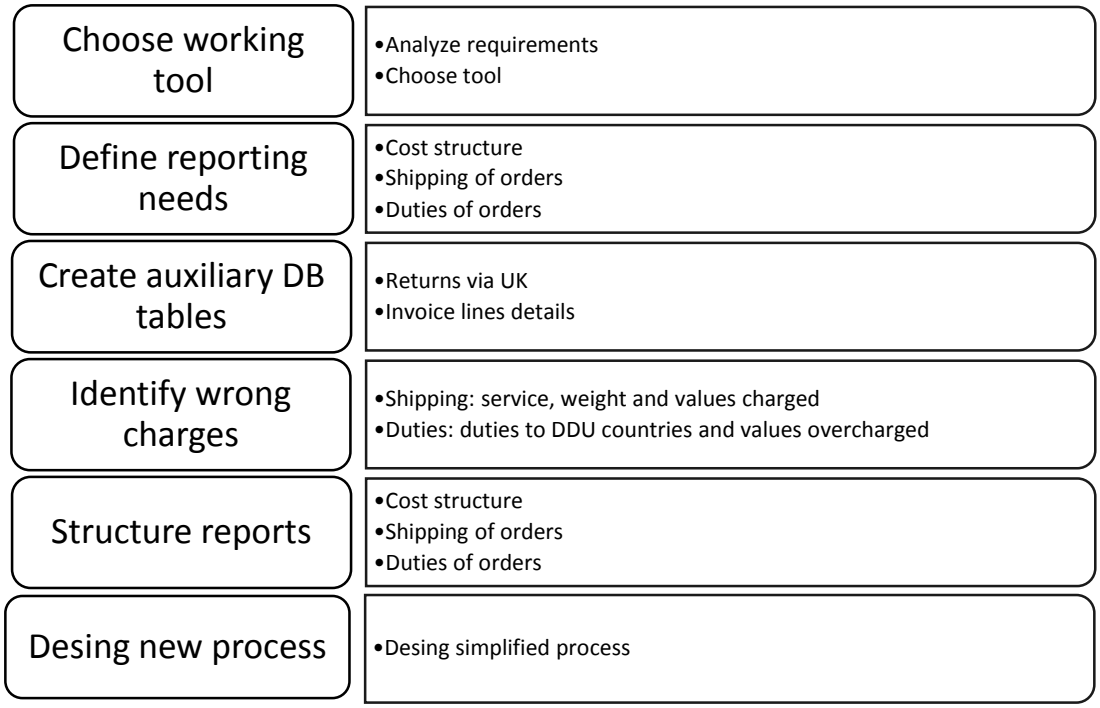

Figure 16 – Methodology for the development of an automated tool for invoice verification and margin assessment

Minor adjustments are made to the SQL queries in use for connecting orders with their respective charges, which are described throughout the following sections. Since the main queries were not developed within the present dissertation, they are not included in the appendixes.

4.3.1 Choose working tool

As stated in section 3.6, the initial process was time consuming, composed of repetitive tasks and becoming incapable of dealing with the growth in sales volume. With an increasing quantity of courier charges to be analyzed – currently reaching 60,000 orders per month – a pivot table within an Excel file has proven not to be suitable. The basic requirements for the tool are:

- Connection with the DB – enable automatic data retrieval and update
- Standardized reports with visual impact – without the need to manually format report structure each month
- Flexible filters – to allow analysis of detailed and composed data when needed

Software available at Farfetch meeting the requirements are Microsoft Excel with PowerPivot, and Tableau Software. The choice relies on using Tableau Software due to its capabilities of flexible visual reporting and ease of use.

4.3.2 Define reporting needs

As stated in the previous section, standardized reports are to be produced monthly regarding cost structure and operational margins. By surveying the Finance and Operations departments' managers, it is concluded that the report should focus on the following topics.

Cost structure

- Share of cost related with orders (shipping, duties, and returns), shipping of slots, shipping of packaging to the boutiques, other known costs (shipping of editorial items, warehouse, or returning damaged items to Farfetch), and costs unaccounted for. To be reported in absolute value and percentage, per month.

Shipping of orders[3]

- Year to date global evolution of average weight, average price, average cost and average revenue per order;
- Monthly margin per customer country;
- Monthly list of the top 20 countries by total order weight sent, detailing number of orders sent, average price, average cost and average revenue per order, absolute margin and as percentage;
- Monthly list of top and bottom 5 countries per absolute operational margin, given a minimum of 10 orders sent;
- Monthly total of possibly wrong charges.

Duties of orders

- Year to date evolution of average duties' rate charged by the courier partner and average rate of revenue;
- Monthly margin per customer country;
- Monthly list of the top 20 countries by number of orders sent, detailing number of orders sent, average duties cost, average revenue, average order value, absolute margin and as percentage;
- Monthly list of top and bottom 5 countries per absolute operational margin, given a minimum of 10 orders sent;
- Monthly total of possibly wrong charges.

4.3.3 Create auxiliary DB tables

From the analysis performed in sections 3.2.1 and 3.6, it becomes clear that not all useful information is being stored, and as a consequence is not available to be used as input for further business analysis. This is the situation of data related with returns performed via UK, and charge type associated with each invoice line.

Returns via UK

In order to calculate the total amount charged related with the second half of the return, i.e. from London to the boutique, these AWB need to be made available in the DB. An auxiliary table was created for this purpose, with a structure matching the original Excel report sent periodically by DHL. The process of input is performed with the aid of a file importer tool upon receiving the report.

Invoice line details and Charge type

The initial process connected information between orders and their correspondent charges, but did not allow to keep history on how much was monthly invoiced for each charge type. It is found helpful to develop a method to store such details, so as to allow ease of access to past information. This eliminates the need to run the main query every time one intends to verify if any given invoice line matches an order in the system.

Manual editing of DB tables for general use – such as the ones storing order and invoice information – is not possible so as to avoid errors in data. Auxiliary tables need to be created, one retaining information of possible charge types and another linking each invoice line with the corresponding type via each invoice line's primary key.

Charge types considered are as listed:

[3] All analysis on shipping costs and margin calculations exclude orders sent with Free Shipping promotions, since these are accounted for as Marketing costs.

1. Duties
2. Shipping
3. Returns
4. Returns via UK
5. Slots
6. Duties – double AWB
7. Shipping – double AWB
8. ? Orders
9. ? Slots
10. ? Packaging
11. ? Returns
12. ? Warehouse
13. ? Editorial
14. ? Marketing cost
15. ? Operations cost
16. ? Logistics cost
17. ? Customer Service cost
18. ? Store cost
19. ? Customer cost

The first seven charge types are associated with AWB actually traced in Farfetch's database. The remaining are marked with an "?", noting that in spite of the AWB not being found in the DB, the charge has a known origin. This indication of origin is present directly in the invoice lines, and is used as a secondary source of information. Although it is possible to identify charge types solely based on the secondary information, it is also relevant to keep track of how many of those match orders in the system. When none of the above apply, then the charge type is left as *null*.

The method for updating the auxiliary table is as follows. When new invoices are available, the primary keys and AWB are inserted into the table, originating a set of new rows with *null* cost type. Cost types are then updated one at a time. Queries are developed to select invoice lines related with each cost type, from the ones still marked as *null*. It is important to follow the correct update sequence, given that charges matching an AWB in the system would also be detected via the secondary source of information.

4.3.4 Identify wrong charges

By analyzing invoice lines' data and comparing with expected values, it is possible to identify which invoice lines may be wrongly charged. Five methods help to identify different error situations, which were developed both by adding fields the SQL queries in use and creating filters on Tableau. Appendix B contains the main programmed fields used as filters on Tableau, as described below.

Service

Farfetch makes use of several service types provided by DHL, such as Express Worldwide or Express Domestic. There are services that the courier partner offers but the company opts out, including deliveries up to a certain hour on the following day, or for parcels containing sensitive items. At times, some invoice lines are billed under these unused service types. Since this information is directly stated in invoice lines, a filter was created on Tableau to detect it. Time bound deliveries include the limit hour, and can thus be identified by the existing of a ":" in the service description; other keywords include "jet", "sprint" and "medical".

Weight

A parcel is usually charged by weight. For larger boxes, on the other hand, volumetric weight is considered. To detect if the weight charged for an AWB is correct or exaggerated, it must be compared to the expected weight. Since no information regarding each item's weight is available, an estimation is done considering the box size used. Internal data regarding the expected weight per box size is considered as reference for comparison.

Amount charged for shipping

Prices for each route are agreed upon with the courier provider based on origin, destination and parcel weight. This information is available in the DB.

The amount charged for shipping is composed of service and fuel fees, plus additional charges in the cases of pick-up or delivery in locations considered remote. These additional charges are of GBP 5 per occurrence.

A comparison is made between price and amount charged, excluding the remote location fee. Invoice lines are considered wrong when charges exceed the agreed price in more than 2%.

Duties charged to DDU countries

As stated in section 3.3.3 several countries have orders sent with DDP – for which duties are included at check-out. In these cases, DHL invoices customs' clearance taxes and duties to Farfetch. For DDU countries, on the other hand, invoices are sent to the final customer and need to be paid before customs clearance. In occasion, DHL wrongly invoices Farfetch for parcels to DDU countries. These are flagged by crossing charges of the duties' type with the country of destination.

Overcharged duties

Duties are most frequently calculated by percentage of item value. Farfetch relies on an external source to provide the duties' rate to be applied at check-out for each item DDP category and destination country. DHL is expected to charge approximately the same proportion of item value. An overcharge is considered when DHL's rate is 50% higher than the one charged by Farfetch to its customers, or if DHL's rate is higher than 50 % of item value.

The filters described above allow the identification of a list of potentially wrong charges, which need to be reviewed. Some filters are fully efficient – *service* and *duties charged to DDU countries* have no margin for faults as they are based on what is contracted with DHL. The remaining filters are subject to an estimation of expected values. These perform well in identifying larger discrepancies, while require some level of manual verification for charges closer to the threshold of what is considered wrong.

4.3.5 Creation of dashboards

In order to generate reporting information, three dashboards were created. In spite of not being on constant display, they provide the required flexibility for drilling down to country or order level, and act as a powerful tool for identifying trends.

The purpose of correctly identifying the cost structure associated with a courier partner is twofold. It is important to convey the message of how much is being spent across each cost category and to know its share of the global charges. On the other hand, it pinpoints invoice lines that do not match any category discriminated so far, and for which an inquiry needs to be initiated. Figure 17 represents the dashboard created, detailing the monthly absolute value and percentage per group of categories.

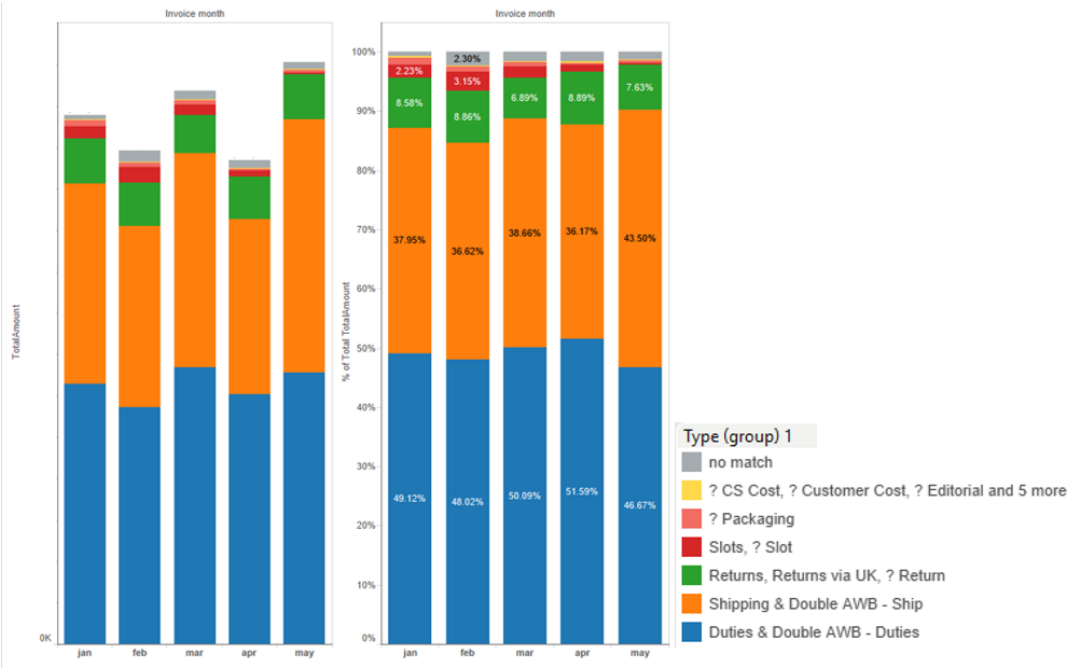

Figure 17 – Cost structure monthly dashboard

For a clearer perception, charge types described in section 4.3.3 are aggregated into groups of charge types with similar context. The dashboard enables a fast review over past months cost structure. Given that the proportion of the most relevant categories remains roughly constant over time, it also helps detect unexpected values for closer examination.

The remaining two dashboards – for shipping and duties of orders – focus on results per customer country. Figure 18 displays the dashboard related to shipping charges. An overview of the absolute and relative margin is given on the left side, for orders sent without Free Shipping promotions. On the right hand side, details over the most relevant countries by volume and performance are stated.

Figure 18 – Shipping monthly dashboard

Figure 19 displays the monthly dashboard for charges related with duties and customs' taxes, and its structure is similar to the previous one. On the left side, a map allows a fast identification of customer countries with negative margins, and a comparison between courier and Farfetch's applied rates is made. The right half displays relevant information regarding customer countries with higher volume, and top and bottom performers.

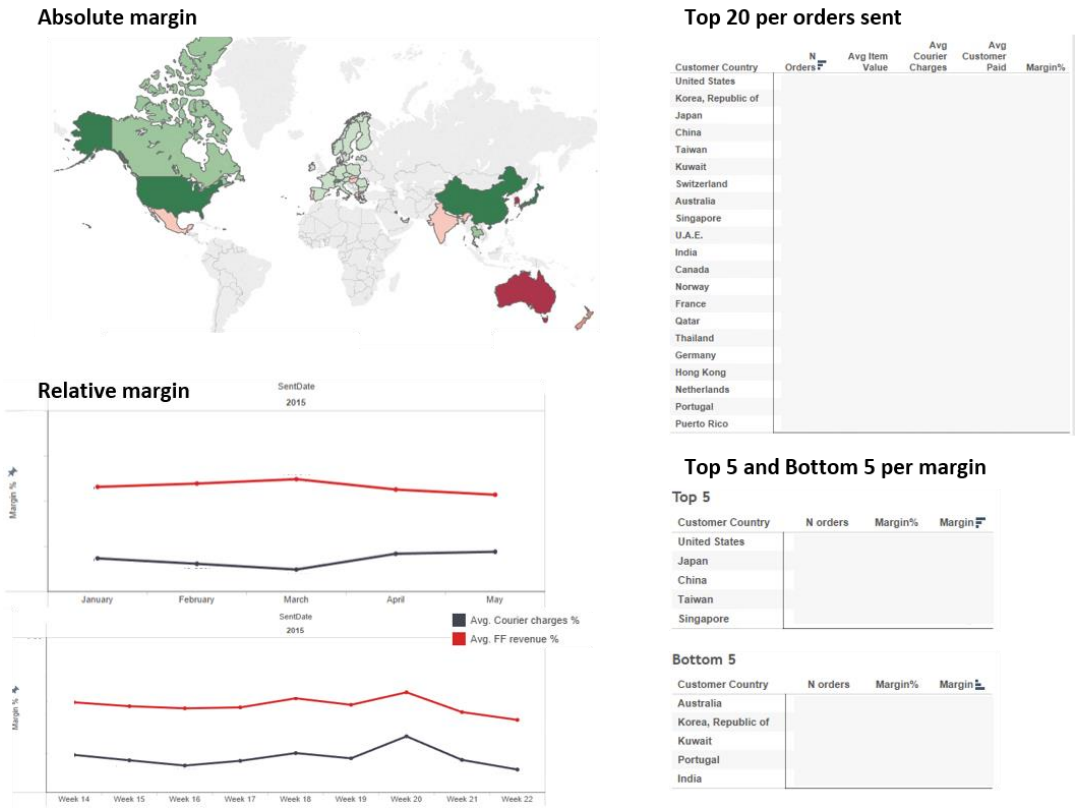

Figure 19 – Duties monthly dashboard

4.3.6 Process redesign

The implementation of the dashboards described in the previous sections enables the streamlining of the process of control and analysis of courier invoices, in particular for DHL. The most repetitive tasks are automated, such as the formatting and filtering to identify wrong charges and produce reporting content. At the same time, the volume of charges requiring direct attention is reduced due to the creation of filters. Figure 20 describes the simplified process.

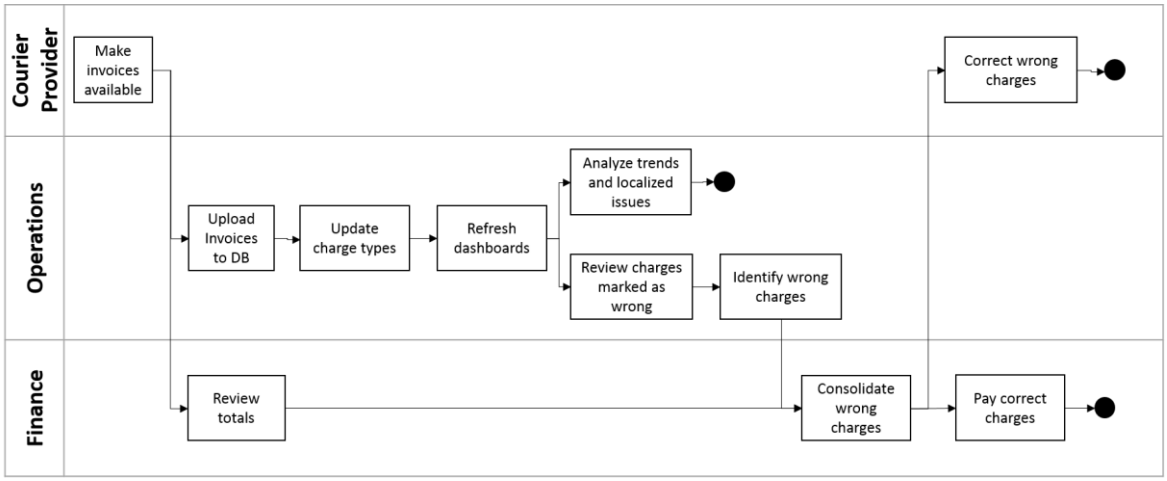

Figure 20 – New process for the control and analysis of courier charges

Upon receiving DHL's invoices, an analyst uploads them into the DB and updates charge types in the auxiliary DB table. After refreshing the dashboards to accommodate the new data, trends and localized issues can be analyzed to include in the monthly reports. By reviewing the automatically generated list of possibly wrong charges, the analyst then assesses which invoice lines are not to be paid. This information is passed along to a Finance Department member, who sums the amounts to be paid and rejected. Lastly, DHL verifies charges identified as wrong, correcting the amounts in the following invoice.

4.3.7 Results

The implementation of an automated tool for invoice control and margin assessment has reduced the time needed to complete such tasks in over 50 % – from 20 to 25 hours initially, to the current 4 to 10 hours. The time required to process is dependent on the number of charges requiring manual verification and the existence of localized issues needing further analysis.

In order to rectify wrong charges, DHL usually chooses to aggregate the total value in one single *dummy* AWB. This enables a fast identification of credits but decreases traceability, meaning that the original incorrect charges cannot be pinned and excluded from the *no match* total.

Table 7 compares the results obtained with the old and the improved processes in detailing cost structure. The initial process identified three categories of costs – shipping, duties and returns of AWB matching orders in the DB. These categories account for approximately 93 % of total invoice values. With the implementation of the proposed method, 98.5 % of costs are now identifiable. The improvement represents a correct allocation of GBP 691,000 since the beginning of 2015.

In order to rectify wrong charges, DHL usually chooses to aggregate the total value in one single *dummy* AWB. This enables a fast identification of credits but decreases traceability, meaning that the original incorrect charges cannot be pinned and excluded from the *no match* total.

Table 7 – Percentage of costs with undefined origin (no match), with the initial and new processes

Month	Initial process	New process
January	6.90 %	0.78 %
February	9.69 %	2.30 %
March	6.80 %	1.58 %
April	6.57 %	1.56 %
May	4.88 %	1.28 %
Overall	**6.89 %**	**1.48 %**

Filters for the identification of incorrect charges have varying accuracies. Filters relying on the comparison between real and expected values are affected by uncertainty related with the expected values. It was found that boutiques are not as careful with data insertion during peak periods – with a high volume of orders to pack, inserting data in the system falls to low priority. As such, information regarding the box chosen is not correct in the DB. In addition, some duties' rates provided by the supplier were found incorrect. Both situations underline the

importance of maintaining a manual verification of costs marked as wrong, and of improving the accuracy of available information.

5 Conclusions and future work

The present project meets two sets of objectives. With the aim of increasing the flexibility and personalization of service offers, an expansion of standard service routes and the concepts of Same Day delivery and Yacht Service are developed. The restructuring of the invoice control and margin assessment process, on the other hand, allows a deeper knowledge of what affects shipping operations' profitability by customer's country. The margin assessment process, alongside the automated sifting of invoices to identify wrong charges, enables a higher control over courier costs.

Both lines of action allow for a better positioning of Farfetch among its competitors, by enhancing differentiation and allowing a decrease of the values related with shipping to be paid by the final customer. Higher insight is provided to top managers, who are now more prepared to create differentiated strategies to each customer country or region.

5.1 New Standard routes

The introduction of Standard service routes has increased customer power of choice as, in many situations, only Express service had been previously available. It was found that the majority of customers would rather wait longer for delivery than pay a higher price for shipping, being that roughly 85 % of customers choose Standard service when available.

On the other hand, Standard service deliveries seem to have impacted customers' perception of service negatively in the first weeks of operation, as concluded from the Delivery and Farfetch Ratings. Since feedback is improving, it is possible that this was a preparedness issue and local courier operators are learning with time. It is recommended to monitor satisfaction indicators for a longer period of time, and to assess whether this issue is resolved or if it persists.

From the 41 routes analyzed and deemed appropriate to implement, 25% are currently available. The required contact with suppliers to set up operations has delayed the process, namely the need to rely on UPS to provide new account numbers for the most recent boutiques. Overlooking the inclusion of recent boutiques would have accelerated the implementation but would have also increased the number of orders needing manual corrections in Step 4 – Create Shipping Label. Given the closeness to the period of sales, when volume increases significantly, it was decided to assure the correct set up is done before enabling the routes. The remaining routes should be made available on a continuous effort to widen service offers. Although the analysis described in sections 4.1.1 and 4.1.2 maintains its validity for a considerable period of time, it should be periodically updated to incorporate data alterations, such as alterations in service prices or exchange rates.

In the future, the connection between courier partner and customer feedback should be further explored. Since each partner provides dissimilar secondary services, such as frequency of parcel location updates and time to respond to customer inquiries, it is possible that customers' experiences are not only related with the time spent in transit.

5.2 New delivery options

The development of new options for delivery services provides a more customized shopping experience, allows distinction from competitor companies and betters customer perception of Farfetch. Two different concepts idealized by C-level managers are analyzed, in the form of Same Day Deliveries and a Yacht Service.

The idea of implementing Same Day Deliveries has existed for several months, which is possible to assess from the effort in validating operational conditions with a testing period. The study presented within the present dissertation analyzes the viability of several locations in order to choose where implementation is expected to produce the best results. From the study of past sales, there are six cities for which Same Day delivery is considered possible – New York, London, Los Angeles, Paris, Miami and Milan.

The expansion to other locations in the future is not excluded, in case sales growth is not uniform but concentrated in some metropolitan areas. It should be relatively faster to include new cities once the project is live, since the major effort relies on developing software support. In fact, the implementation of Same Day Delivery is dependent on software development work, as it involves the alteration of website layout and the update of Farfetch's managing tool for boutiques. It is included in the projects currently under development and deployment is estimated to occur in September.

The implementation of the Yacht Service, an addition to the VIP Service already in place, is viewed as an opportunity to provide high value customers a curated and personalized shopping experience. Given the geographical proximity of most popular yacht marinas and Farfetch's partner boutiques, it is deemed viable that part of the deliveries can be accomplished by boutiques' employers. In fact, many boutique owners were delighted with the perspective of a closer contact with Farfetch's customers.

The fact that the Yacht Service does not rely on additional software development makes it possible to speed implementation – it is expected to begin in late July of 2015. At the moment, feedback is required from the Marketing Department in order to plan communication actions among VIP customers, and VIP PS team members require a training session on service particularities.

5.3 Cost structure and margin assessment process redesign

The rise of order volume has brought in an increased difficulty in performing tasks of controlling if charges are correctly invoiced and calculating margins related with courier operations. In addition, it was found that managers are also interested in knowing the distribution of costs between categories.

Defining and detailing the cost structure for DHL has proven helpful in identifying and narrowing the amount of costs of unknown origin, which have decrease from an average of 7% to 1.5% as detailed in section 4.3.7. This improvement represents a correct allocation of GBP 691,000 in the present year (January to May 2015).

Lowering the percentage of costs that are not associated with a known category is object for further development. Different techniques for identifying the origin of costs should be considered. Situations such as manually generated AWB, or orders that are returned to the boutique due to an incorrect item and then shipped back to the customer, imply that one order may have more than one AWB. The improvement of DB registers should be considered in order to enable linking several AWB with a single order, and thus help improve matching capabilities.

On the other hand, not all cost types are correctly and constantly inserted in the DB by Farfetch. Information regarding shipping of slots and packaging is scarce, while data on editorials and other categories of lower cost share is simply inexistent. There should be a generalized effort

to improve the quality and quantity of such information in the DB, enabling its use across all departments.

Another issue arises from the fact that DHL correct wrong charges in two different ways. If wrong costs are related to many AWB in the same month, DHL opts to create a *dummy* AWB to credit Farfetch instead of crediting many AWB for low values. In spite of allowing a faster identification of credits, it does not permit the identification of what original charges are being corrected. In practice, this means that at times it is not possible to correctly remove such values from the "no match" total.

The tool created for managing shipping and duties charges has two uses – to allow the automatic triage of AWB that seem dubious and to generate standardized reports, serving as input to further analyses. The objective of decreasing the time required to perform such tasks was fully accomplished. Tasks that required an analyst to spend 20 to 25 hours were simplified and automated, and now represent 4 to 10 hours of work. The time required to perform the tasks depends on the number of AWB marked for manual verification – which is proportional to the total quantity of orders sent – and the existence or not of issues in margin values requiring further analysis.

The identification of incorrect charges relies on the five filters created. As detailed in section 4.3.4, two of them are fully capable of pinpointing wrong charges. The remaining are based on comparisons between actual and expected values, which are not totally accurate.

Regarding the expected weight it is assumed that the box inserted in the DB by the boutiques is the one actually used. Although the input box size is usually correct, it was discovered that boutiques overlook the quality of information input during peak times, such as sales or a Free Shipping promotion. As such, the tool may classify charges as wrong due to a mistaken "expected value".

Charges related with duties are also subject to some level of discrepancies regarding expected values. During the implementation of the present project it was found that the provider of duties rates is not fully reliable and information cannot be used blindly and without verification. It is common for some duties categories to be provided with incorrect rates, which are corrected upon insertion in the DB. This makes possible the existence of one or more rates to be wrong and remain undetected. In the future, discrepancies in cost and revenue from duties should be also analyzed by a duties category perspective, allowing the identification of categories with higher need for review. A future project could also encompass the creation of a Farfetch-owned table of duties' rates based on data collected from multiple sources.

Since the tool used is flexible, report structure can easily be updated if other types of data gain relevance in the future, or to include additional analysis.

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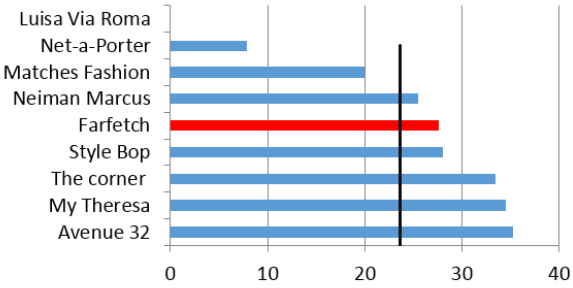
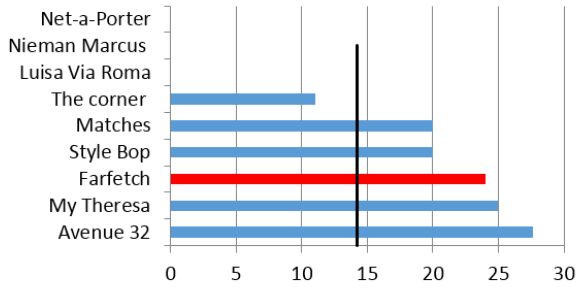
ANNEX A: Shipping price comparison

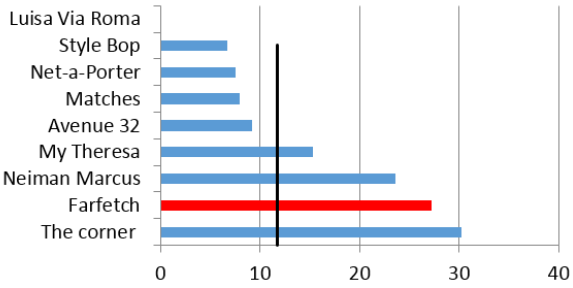
Australia - USD



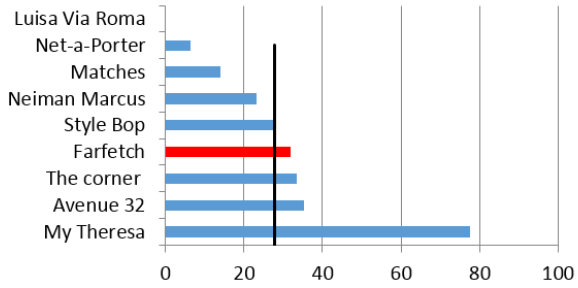
US - USD



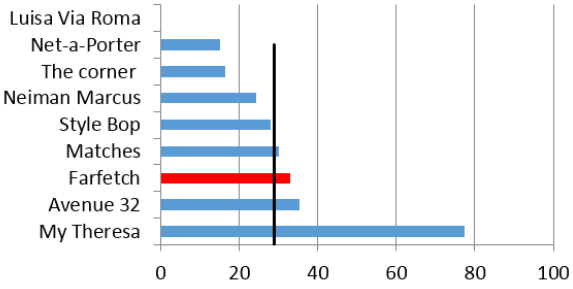
UK - USD



Hong Kong - USD



China - USD



ANNEX B: Tableau programmed fields

Shipping

[Wrong Service?]:

```
If (Contains ([productname],':') or
     Contains ([productname],'jet') or
     Contains ([productname],'medical') or
     Contains ([productname],'sprint')
     )
Then 'wrong'
Else 'right'
End
```

[Remote area delivery]:

```
If ([XC1Code] = 'OO' or [XC2Code] = 'OO' or [XC3Code] = 'OO'
     or [XC4Code] = 'OO' or [XC5Code] = 'OO' or [XC6Code] = 'OO'
     or [XC7Code] = 'OO' or [XC8Code] = 'OO' or [XC9Code] = 'OO'
     )
Then 1
Else 0
End
```

[Remote area pick]:

```
If   ([XC1Code] = 'OB' or [XC2Code] = 'OB' or [XC3Code] = 'OB'
     or [XC4Code] = 'OB' or [XC5Code] = 'OB' or [XC6Code] = 'OB'
     or [XC7Code] = 'OB' or [XC8Code] = 'OB' or [XC9Code] = 'OB'
     )
Then 1
Else 0
End
```

[Cost – remote area charge]:

```
[TotalAmount] - 5 * ([Remote area delivery] + [Remote area pick])
```

[Diff price – cost]:

```
If ([Price] - [Cost - remote area charge]) < -0.2
Then [Price] - [Cost - remote area charge]
Else NULL
End
```

[Expected weight (kg)]:

```
If [box] = ‘Box 1 – Clothes box’
Then 2.5
Elseif [box] = ‘Box 2 – Shoes box’
Then 4
Elseif [box] = ‘Box 3 – Double shoes box’
Then 7
Elseif [box] = ‘Box 4 – Accessories box’
Then 1
Elseif [box] = ‘Box 5 – Big box’
Then 13.5
End
```

[Reason why wrong]:

```
If [wrong service?] = 'wrong'
Then 'service type'
Elseif [Weight (kg)] > [Expected weight (kg)]
Then 'weight'
Elseif [Cost - remote area charge] > 1.02*[Price]
Then 'cost > price'
End
```

Duties

[Courier overcharge %]:

```
[Rate Courier %] / [Rate FF %] - 1
```

[Wrong?]:

```
If ([Rate Courier %] > 0.5 or
     [Courier Overcharge %] > 0.5
     )
Then ‘wrong’
Else ‘right’
End
```